

FE390

FE390

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey Field Examination

Field No. MI-10-3-93

Registry No. FE-390

LOCALITY

State Louisiana

General Locality Gulf of Mexico

Sublocality 10 NM South of Isles

.....
Dernieres

.....
19 93

CHIEF OF PARTY

.....
CAPT D.B. MacFarland

LIBRARY & ARCHIVES

DATE August 22, 1994

FE-390SS

FIELD NO.

MI-10-3-93

Soundings in XXXXXXXXXXXXXXXXXXXX fathoms XXXX feet XXXX MLLW XXXX meters

NW 015 / SURF - 8/29/94, SSV

AUGUST 1993

PROJECT SKETCH

S-K904-MI-93

NOAA SHIP MT MITCHELL

CAPT. DAVID B. MACFARLAND

TIDE GAUGE
876-2888

ISLES DERNIERES

LEGEND

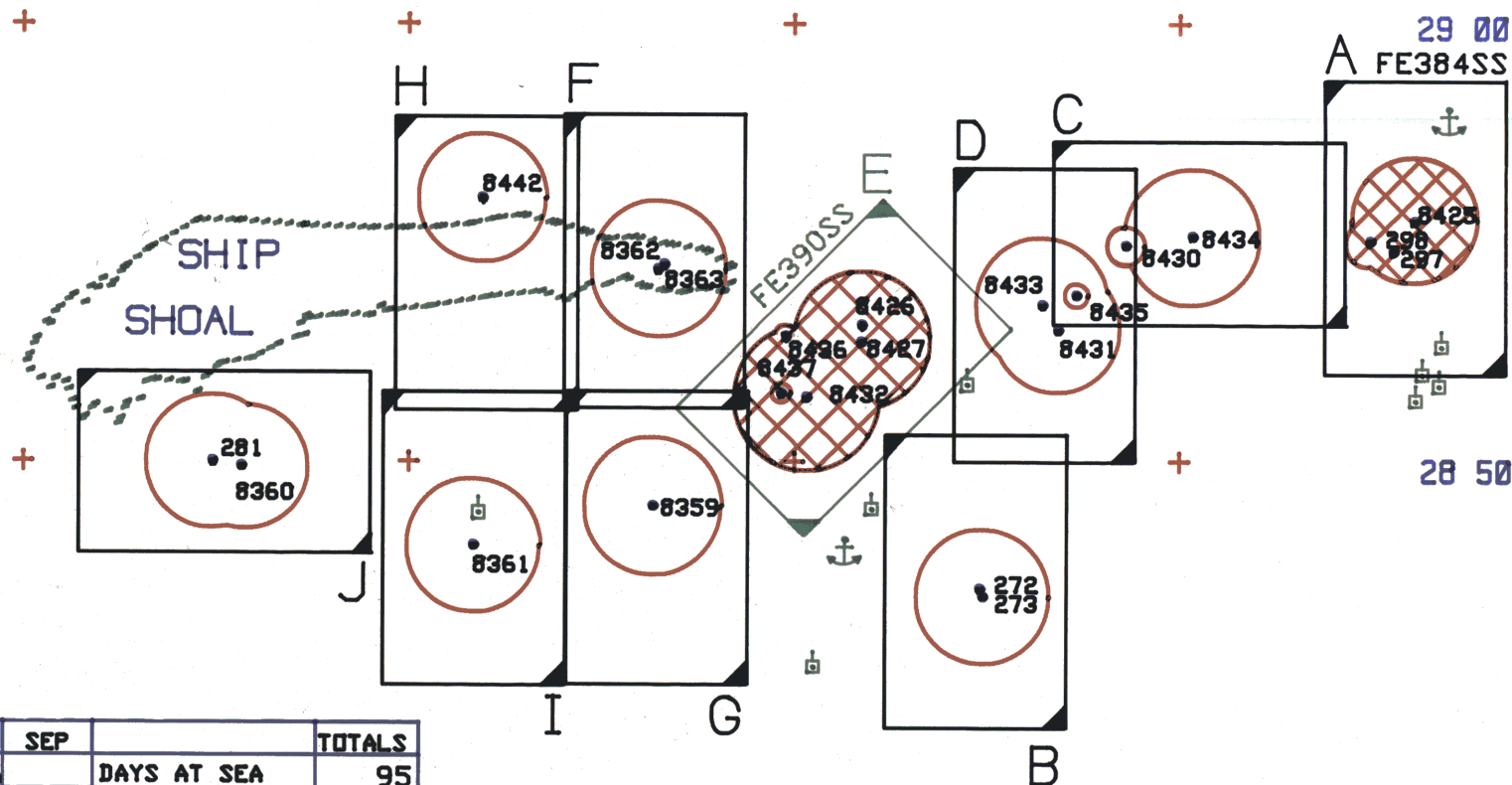
AVOIS ITEA AND
SEARCH RADIUS

100 % COVERAGE

200 % COVERAGE

CTD

ANCHORAGE



MAY	JUN	JUL	AUG	SEP		TOTALS
21	24	24	26		DAYS AT SEA	95
50	213	842	668		LNH	1673
6.3	10.4	29.5	50.9		SQNM	97.1
2	3	4	6		CTD'S	15
21	44	34	14		DIVES	113
0	0	4	5		AVOIS RESOLVED	9
0	3	3	1		NEW ITEMS	7

AWOIS 8436

Lat. 28-52-56.845 N
Lon. 090-50-06.378 W



30 July 1993

DN 211

Height above water line
at MLLW is 2.7 meters.

Depth of water (MLLW)
is 7.7 meters.

AWOIS 8436 (Jackup
30 July 93 rig leg)



AWOIS 8436 Jackup rig leg
30 July 93 extends to a
20:23:00 GMT height of 2.6 m
15:23:00 CDT out of the water

Item is 100 meters NNE of reported position of AWOIS 8437.
Item has functioning horn and is equipped with a light.

Approximate height is 10 meters.
Depth of water (MLLW) is 11.2 meters.

DP # 6561 (DN 228): Lat. 28-51-36.¹¹₂ N
Lon. 090-50-10.4¹₂ W



RIG LEGS BARING 5⁶ METERS

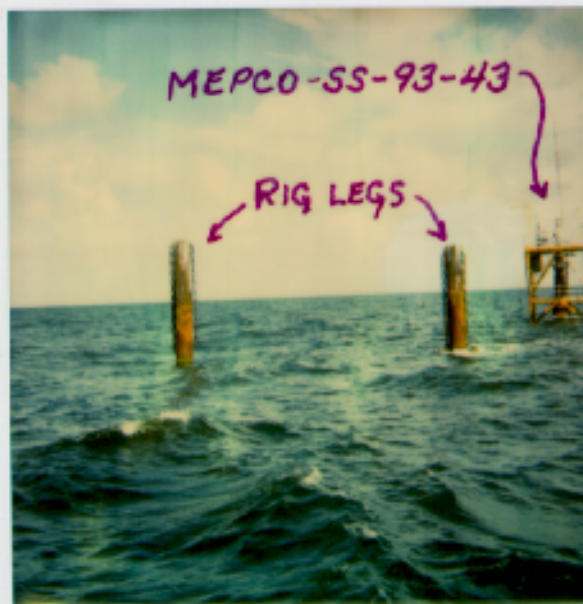
NUMBER (DD) ON THE S.S.

MEPCO-SS-93-43



MEPCO-SS-93-43

RIG LEGS



E Sheet fix # 6581

2 Rig legs w/ chain
+ RIS

23/53/52.17N

070/48/47.42W

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** FILED WITH THE ORIGINAL SURVEY DATA*

A. PROJECT

A.1 This survey was conducted in accordance with Project Instructions OPR-SK904-MI-93, Louisiana Coast Item Investigation, Louisiana.

A.2 The original date of the instructions is April 6, 1993.

A.3 The following changes to the original instructions are relevant to this survey:

June 3, 1993 - An amendment to the project instruction was received from the Director, Atlantic Marine Center. This amendment instructed MT MITCHELL to monitor both the New Orleans DGPS beacon and the NOAA HF DGPS transmitter with the NOS program *SHIPDIM*. The *OUTLIER.SUM* file from this program is to be forwarded to N/CG241.

July 23, 1993 - Change #1. Tide gage installation on Gulf of Mexico side is not required. Loran-C chart verification not required.

A.4 A sheet letter was not specified in the project instructions. Sheet letter "E" was assigned by the ship.

A.5 Project OPR-SK904-MI-93 responds to concerns expressed by the Eighth Coast Guard District regarding the effect of Hurricane Andrew in 1992 in the vicinity of Ship Shoal. Various types of wreckage, including jack-up oil rigs destroyed in previous hurricanes, have either disappeared or been moved to unknown locations by the strong currents generated by Andrew's storm surge.

B. AREA SURVEYED

B.1 This survey is located 15 nautical miles SW (southwest) of the eastern tip of Isles Dernieres, Southern Louisiana Coast. Existing depths are between 6 and 17 meters (20 to 57 feet). AWOIS Items 8427, 8428, 8432, 8436, and 8437 are covered on this sheet.

The primary traffic in the area are oil rig tending / supply transports, tug and barge traffic, and small shrimp trawling vessels. The traffic is almost exclusively shallow draft vessels.

B.2 The survey area is rectangular in shape and has a skew of 315 degrees. The latitude and longitude of the corners of the survey area are:

028° 48' 34.63''N	090° 49' 37.30''W
028° 51' 28.96''N	090° 52' 55.80''W
028° 56' 09.49''N	090° 47' 37.57''W
028° 53' 15.03''N	090° 44' 19.26''W

B.2 (cont'd)

Only the search radii for AWOIS items 8427, 8428, 8432, 8436, and 8437 were surveyed. The AWOIS Listing indicated that AWOIS items 8427 and 8432 required 200% side scan coverage, and AWOIS items 8428, 8436, and 8437 required 400% side scan coverage. The charted positions and search radii for the AWOIS items on this sheet are as follows:

<u>Item</u>	<u>Charted Position</u>	<u>Search Radius</u>
AWOIS 8427	28° 52' 40.30"N 090° 48' 05.20"W	3000 meters
AWOIS 8428	28° 53' 06.00"N 090° 48' 06.00"W	3000 meters
AWOIS 8432	28° 51' ^{59.12} 30.85 "N 090° 49' ^{50.35} 30.33 "W	3000 meters
AWOIS 8436	28° 52' 51.00"N 090° 50' 03.00"W	500 meters
AWOIS 8437	28° 51' 33.00"N 090° 50' 11.00"W	500 meters

B.3 Data acquisition began on July 19, 1993 (DN 200) and concluded on August 30, 1993 (DN 242).

C. SURVEY VESSELS

C.1 The following vessels were used during this project:

<u>VESSEL</u>	<u>ELECTRONIC DATA PROCESSING NUMBER</u>	<u>PRIMARY FUNCTION</u>
JENSEN LAUNCH 1017 (MI-3)	2223	Hydrography/Side Scan Operations, Diving Operations
JENSEN LAUNCH 1002 (MI-4)	2224	Hydrography/Side Scan Operations, Diving Operations
BOSTON WHALER (MI-1)	N/A	Diving Operations, CTD Casts Tide Gage Support
SEA ARK (MI-5)	N/A	Diving Operations, CTD Casts Tide Gage Support

C.2 There were no unusual vessel configurations used for side scan sonar data acquisition during this field investigation. No problems were encountered with the standard launch stern tow of the side scan sonar towfish.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

D.1 Survey data acquisition and processing were accomplished using the HDAPS system with the following software versions:

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>	
AUTOST	3.01	May 17	
BACKUP	2.00	July 23	
BASELINE	1.14	July 23	
BIGABST	2.05	July 23	
BIGAUTOST	*.**	July 23	No version number
BLKEDIT	2.02	July 23	
CARTO	2.09	Aug 15	
CONTACT	2.09	Aug 15	
CONVERT	3.54	July 23	
DAS_SURV	6.42	Aug 15	
DIAGNOSE	3.03	July 23	
DISK_UTIL	1.00	July 23	
DP	2.14	July 23	
EXCESS	4.11	July 23	
FILESYS	3.10	Aug 15	
GRAFEDIT	1.04	July 23	
HIPSTICK	1.01	July 23	
HPRAZ	1.26	July 23	
INSTALL	4.02	July 23	
INVERSE	2.01	July 23	
LISTDATA	1.02	July 23	
LOADNEW	2.05	July 23	
LSTAWOIS	3.03	July 23	
MAINMENU	1.10	Aug 15	
MAN_DATA	2.01	July 23	
NEWPOST	6.01	July 23	
PLOTALL	2.11	July 23	
POINT	2.10	July 23	
PREDICT	2.01	July 23	
PRESURV	7.04	Aug 15	
PRINTOUT	4.03	July 23	
QUICK	2.04	July 28	

D.1 (cont'd)

<u>Program Name</u>	<u>Version</u>	<u>Date Installed</u>
RAMSAVER	1.02	July 25
REAPPLY	2.03	July 23
RECOMP	2.02	July 23
REFTIDE2	1.00	July 28
SCANNER	1.00	July 23
SELPRINT	2.03	July 23
SYMBOLS	2.00	Aug 15
ZOOMEDIT	2.12	July 23

To conduct DGPS performance checks a *LOTUS 1-2-3* spreadsheet was used. A copy of the spreadsheet is included in the **Electronic Control Report**.

D.2 Two programs were used to determine velocities: *VELOCITY* (Ver. 2.00) and *CAT* (Ver. 2.00), both dated December 18, 1992.

D.3 There were no nonstandard automated acquisition or processing methods used.

E. SIDE SCAN SONAR EQUIPMENT

E.1 Side scan sonar operations were conducted using an EG&G Model 260-TH slant range corrected side scan recorder and a Model 272-T (single frequency) towfish. All side scan operations were conducted from either Launch MI-3 or Launch MI-4 (VesNo 2223 and 2224). The following list shows the equipment serial numbers and corresponding dates used for each boat:

<u>Vessel Number</u>	<u>Equipment Type</u>	<u>Serial Number</u>	<u>Dates Used</u>
2223	Recorder	016672	July 19 - August 30
2223	Towfish	016699	July 19 - August 30
2224	Recorder	016669	July 20 - August 29
2224	Towfish	016700	July 20 - July 30
2224	Towfish	016696	July 31 - August 29

E.2 All side scan sonar towfish were configured with a 20° beam depression, which is the normal setting.

E.3 The 100 kHz frequency was used throughout this entire survey.

E.4 a) In sufficiently deep water the 100 meter range scale was used for main scheme coverage. On the shoal area of the sheet (under 10 meters water depth) the 75 and 50 meter range scales were used. Occasionally, if it was felt that the edges of the 100 meter range were not being picked up sufficiently, main scheme was run off the shoal on the 75 meter range scale.

E.4 (cont'd)

Both the 25 meter and 50 meter range scales were used for contact development, as it yields a trace of higher definition.

Line spacing for main scheme coverage was determined using the formula provided in section 7.3.2.2 of the Field Procedures Manual ($LS_{\max} = 2RS - 2EPE_{\max}$). The predicted maximum estimated position error (EPE) did not exceed 15 meters within the survey area, so a maximum line spacing of 170 meters was established for the 100 meter range scale, 120 meter line spacing for the 75 meter range scale, and 70 meter line spacing for the 50 meter range scale.

In the southern half of the survey area the second 100% sonar coverage was run at 90° to the first 100%. However, on the shoaler north side both sets of 100% coverage were run in parallel East/West lines. The second 100% was offset from the first 100% to better locate any items in the area.

b) Daily opening and closing confidence checks were obtained either by towing the fish past the anchor of a nearby oil rig, or by towing it past the pipes going to one of the nearby well heads, or past MT MITCHELL's anchor. Confidence checks are also possible throughout the day because of the large amount of debris on the bottom.

c) As indicated in section B.2 of this report, AWOIS items 8427 and 8432 required 200% side scan sonar coverage, and AWOIS items 8428, 8436, and 8437 required 400% side scan sonar coverage. The search radii for AWOIS items 8427 and 8432 were covered with the specified 200%. However, only the search radius for AWOIS item 8437 was covered with the specified 400%. The reasons that AWOIS items 8428 and 8436 were not covered by the required 400% sonar coverage are described below.

The search radius for AWOIS item 8428 lies in the shoalest (6 - 8 meters) portion of the sheet area. Due to this shoal water depth, the 100% and 200% coverage was run using east - west lines, using the 50 and 75 meter range scale in the survey area. The 50 and 75 meter range scales provide a very detailed view of bottom features. It was believed that the 300% and 400% coverage, which would also have to be run using east - west lines, would be of little value. On July 29, 1993 telephone conversations with Steve Verry of the Hydrographic Survey Branch resulted in the coverage requirement for AWOIS item 8428 being reduced from 400% to 200%.

The search radius for AWOIS item 8436 was covered with 200% side scan sonar. The additional 300% and 400% coverage was unnecessary since the item was found and identified during the first 200% coverage. See section N of this report for the details of AWOIS item 8436.

d) Through the course of data acquisition we had to overcome several problems with our side scan trace. The problems were as follows:

E.4 (cont'd)

Through the entire survey, bottom track was kept on levels 5 or higher. This is due mostly to the poor sea conditions and the turbidity of the water.

There is quite a bit of "noise" on the side scan traces. On several occasions schools of fish were observed both in the water and on the trace. The reflection of the patches of Sargasso weed floating on the surface appeared as large black blotches on the sonar record. Other vessels approaching created turbulence in the water resulting from their wakes. Whenever possible, these sources of noise were annotated on the sonar trace. Whenever we felt we could not see through the noise, data was rejected and the lines run again. We are confident that any accepted data with noise still affords full swath width visibility.

Weather conditions also played a crucial role in side scan trace quality. On windy days, the sea state would reflect on the trace, producing unacceptable results. In heavy rain squalls, a similar effect occurred. On certain days of calm seas the freshwater / saltwater boundary created severe density affects in the water column, restricting the side scan's effective swath width. These are similar to the thermocline effects seen in Northern waters. The affect here is thought to be caused by a sharp salinity gradient between the surface brackish water and the deeper saltier water - CTD casts to date show that the temperature differentials between the surface and bottom is on the order of 1- 3 °C, but the salinity can vary as much as 10ppt.

When these factors obscured the sonar traces the effective range scale was reduced during processing, or the entire line was rejected and rerun.

E.4 e) The towfish were deployed from the sterns of both launches during the entire survey period.

E.5 Once a contact was considered significant, based on shadow height or fathometer readings, a launch was sent back to the contact for further development. The contact development consists of running several side scan sonar lines over the contact to ensonify the contact from four different perspectives. Typically, these development lines were run using the 25 meter or 50 meter range scale for more detailed sonargrams. If the sonar development revealed a significant contact, the launch OIC would then run several fathometer development lines to obtain an approximate least depth of the contact.

Based on the results of the contact development, the contact was judged to be a "No Further Investigation" or a "Dive Site." For each Dive Site investigation the divers would search for the contact, obtain a pneumogauge or leadline least depth on the contact, and place a marking buoy on a short stay at the point of least depth. A launch would then obtain a Detached Position on the marking buoy and then retrieve the buoy.

E.6 Any contact thought to be significant was entered into the contact tables. Significance was based on shadow height and general appearance of the contact. Once 200% coverage was achieved the contact tables were compared to see which contacts were rediscovered. Based on rediscovery and shadow heights, most of the contacts were judged to require no further investigation. The contacts deemed important were then developed using the procedures described in section E.5 above.

Overlap was checked on-line using the real-time swath plot and checked again during processing using the edited swath plot. Any overlap less than two millimeters at the scale of the survey was considered a gap. Gaps were filled by running additional side scan sonar lines.

During routine data acquisition for this sheet several gaps in the side scan sonar coverage were created. The sources of these gaps include reduced swath width, DGPS reception failures, bad helm, and starting or breaking line inappropriately. The majority of these gaps were found during data processing and a launch was sent to run a "gap line" to achieve the appropriate side scan sonar coverage.

On 13 September 1993, final data processing for this sheet revealed 4 small areas in 100% side scan sonar coverage and 2 small areas in 200% side scan sonar coverage that may have been gaps in the sonar coverage. These areas could not be filled by running additional lines because the controlling tide gauge (Isles Dernieres) for this sheet had been dismantled on 9 September 1993. All of the gaps in the 100% side scan sonar coverage are covered at least once by swaths from 200% side scan sonar coverage. Similarly, all of the gaps in the 200% side scan sonar coverage are covered at least once by swaths from 100% side scan sonar coverage.

Further investigation revealed that while a gap may appear in one of the 100% swath plots, the area may have actually been covered twice by lines on the other 100% swath plot. All of these areas are described below and are shaded in red on the swath plots of side scan sonar coverage.

100% Gap #1:	Easting	12700	Width	140 m
	Northing	8800	Length	160 m
	Covered by 200% side scan sonar fixes: 6504.7 - 6505.6 both channels			
	1632.5 - 1633.0 both channels			
	Area was covered twice by 200% side scan sonar and therefore is not a gap.			
100% Gap #2:	Easting	11825	Width	80 m
	Northing	8450	Length	140 m
	Covered by 200% side scan sonar fixes: 6518.5 - 6519.5 both channels			
	Area was covered once by 200% side scan sonar.			

E.6 (cont'd)

100% Gap #3: Easting 18060 Width 30 m
Northing 23800 Length 80 m
Covered by 200% side scan sonar fixes: 2467.5 - 2468.0 starboard channel
2430.0 - 2430.3 port channel

Area was covered once by 200% side scan sonar.

100% Gap #4: Easting 18075 Width 50 m
Northing 23425 Length 80 m
Covered by 200% side scan sonar fixes: 2394.0 - 2394.3 port channel
2392.5 - 2393.3 port channel

Area was covered once by 200% side scan sonar.

200% Gap #1: Easting 11000 Width 40 m
Northing 22875 Length 100 m
Covered by 100% side scan sonar fixes: 5541.0 - 5542.0 starboard channel
5549.0 - 5550.0 starboard channel

Area was covered once by 100% side scan sonar.

200% Gap #2: Easting 26450 Width 10 m
Northing 21800 Length 400 m
Covered by 100% side scan sonar fixes: 1905.8 - 1907.0 starboard channel
2928.0 - 2931.0 port channel
2932.0 - 2935.0 port channel
2698.0 - 2700.0 both channels

300 meters of the area was covered twice by 100% and therefore is not a gap.

100 meters of the area was covered once by 100%.

NOTE: In all cases the side scan sonar records covering the gaps were carefully reexamined for any possible contact. In all cases there were no contacts of significance. All of the areas mentioned above are shaded in red on the swath plots for this survey.

Based on the absence of contacts in these few small areas, the data acquired is sufficient to disprove the existence of any AWOIS items in these red shaded areas.

F. SOUNDING EQUIPMENT

F.1 All hydrographic soundings were acquired using a Raytheon 6000N Digital Survey Fathometer (DSF). The following list shows the equipment serial numbers and corresponding dates used for each boat:

F.1 (cont'd)

<u>Vessel Number</u>	<u>Manufacturer's Serial Number</u>	<u>Dates Used</u>
2223	A122N	July 19 - August 12
2223	B051N	August 13 - August 30
2224	B047N	July 20 - August 29

On the HDAPS on-line printout, the echosounders may have been referred to by DOC property number on some days, AMC property numbers on other days, and manufacturer serial number on yet other days. The following table links all of the numbers together:

<u>DOC Number</u>	<u>AMC Number</u>	<u>Manufacturer's Serial Number</u>
61442	A001083	A122N
61450	A001040	A110N
61454	A001172	B047N
61457	A001036	B051N

F.2 All diver-determined least depths were measured with a pneumatic depth gauge or a calibrated lead line. MT MITCHELL is equipped with a 3-D Instruments Inc. Precision Direct Drive Depth Gauge, serial number 245418. The gauge is designed to read depths from 0 to 42 meters. Refer to section G.4 for a discussion on the pneumatic depth gauges.

System checks on both the fathometers and the pneumogauge were performed using two lead lines. These lines were calibrated as per instructions in the Hydrographic Manual section 7.2.1.2.

F.3 No faults in the sounding equipment were observed.

F.4 Both the high (100 kHz) and the low (24 kHz) frequency sounding data were recorded during data acquisition. Only high frequency soundings were digitized and selected for plotting. Low frequency sounding data were examined for spikes indicating nearby items. These spikes were also plotted.

G. CORRECTIONS TO SOUNDINGS

G.1 a) Detailed information and tables used to determine all corrections to soundings can be found in the **Sounding Equipment Calibration and Corrections Report**.

The velocity of sound through water was determined using a Seacat conductivity, temperature and density gauge (S/N 192472-0284) manufactured by Sea-Bird Electronics, Inc. A Data Quality Assurance (DQA) Test was conducted with each velocity cast to ensure the meter was within tolerance. The DQA test was performed using hydrometers manufactured by H-B Instrument Company.

G.1 (cont'd)

All data were processed using *VELOCITY* Version 2.00 and *CAT* Version 2.00 software. The computed velocity correctors were entered into the HDAPS sound velocity tables and applied on-line to digitized high frequency soundings. Sound velocity correctors applied to this survey were obtained on the following dates:

<u>Cast Number</u>	<u>Date</u>	<u>Latitude</u>	<u>Longitude</u>	<u>HDAPS Table #</u>	<u>Applied To Day #'s</u>
9	7/28/93	28° 49.00' N	090° 48.00' W	9	200-213
13	8/12/93	28° 49.00' N	090° 48.22' W	13	224-229
15	8/29/93	28° 45.15' N	090° 49.58' W	16	241-242

- b) There was no variation in the DSF-6000N instrument initial.
- c) No instrument correctors to the DSF-6000N were required.
- d) No instrument corrections were determined from direct comparison of bar checks.

Lead line comparisons with the DSF-6000N were made for each launch on DN 209 and DN 240. Results are as follows:

<u>VN</u>	<u>S/N</u>	<u>Corrected Lead Line Depth (m)</u>	<u>Corrected Digital Depth (m)</u>	<u>Δd (m)</u>
2223	A122N	15.4	15.5	-0.1
2223	A122N	9.3	9.1	0.2
2223	B051N	7.9	7.9	0.0
2224	B047N	7.1	7.3	-0.2
2224	B047N	8.6	8.7	-0.1

Conversations with cartographer Rick Whitfield of the Hydrographic Survey Section (N/CG2441) helped us determine that these comparisons are within accuracy requirements.

Daily bar checks were attempted on each launch. A comparison of digital and analog readings was also done in the check. Strong current and rough weather conditions at the working grounds prohibited dependable bar checks. As the weather improved the bar-checks became more reliable.

Comparisons between diver determined least depth by pneumatic gauge and DSF soundings over items were not made.

- e) All sounding correctors were applied to both the narrow (100 kHz) and the wide (24 kHz) beams.

G.1 (cont'd)

f) The static draft of launches MI-3 (VesNo 2223) and MI-4 (VesNo 2224) was determined in April, 1993 while the launches were out of the water at the Atlantic Marine Center, Norfolk, Virginia. A calibrated steel tape was used to measure the distance from the transducer to a reference line on the launch above the waterline. The launches were then put in the water and the distance from the waterline to the reference line was measured. Static drafts of 0.6 meters were used in HDAPS Offset tables for both launches (refer to Separate III).

g) Settlement and squat correctors for each launch were determined, using procedures outlined in the Hydrographic Manual, on the Elizabeth River on April 30, 1993. An observer, stationed with a level on a pier, measured changes in relative height as each launch ran toward and away from the observer at various speeds. Settlement and squat correctors were applied to soundings through the HDAPS offset table. Refer to the **Sounding Equipment Calibrations and Corrections Report** for a more detailed description of the static and dynamic draft determinations.

h) Neither launch is equipped with a heave, roll and pitch indicator. Wave action on the fathogram was scanned out by the processing team.

G.2 The HDAPS program "Reapply" was frequently used for data collected on the first day of each leg. Velocity casts were performed at the start of each leg. On that first day the launches ran on velocity table 0, and on the appropriate table thereafter. Once the new HDAPS velocity table became available the data was reapplied correspondingly.

G.3 Except for the following, velocity casts were run at the start of each leg. All data collected has the appropriate velocity table applied to it. On July 19 (DN 200) velocity cast #8 was taken with Seabird CTD s/n 192472-284. This cast did not extend to a sufficient depth for the survey area. Cast #8 extended to a depth of 11.9 meters and the deepest depth in the survey area is 16.5 meters.

Velocity cast #9 was taken on July 28 (DN 209) and extended to an adequate depth. Velocity table #9 was generated and entered into HDAPS. This table was then reapplied to the survey data acquired prior to this cast (DN 200, 201 and 202). Based on the consistency of other casts taken in the Ship Shoal area throughout the project, we are confident that the water column had not changed significantly over this time period.

G.4 The ship's pneumatic depth gauges were calibrated by 3-D Instruments, Inc. of Huntington Beach, CA on April 28, 1993. Corrector data from the calibrations were plotted graphically, but were not applied to pneumatic depths because they were less than 0.1 meters.

System checks were performed on the gauges as illustrated in HSG 55. The gauge checks worked well in shallow water, but as water depths went over eight to ten meters, substantial surface currents caused problems (for example, the currents would set the calibrating leadline as much as 30° which, at 10 meters depth, corresponds to 0.5 meter error). Checks were

G.4 (cont'd)

always performed before use. See the **Sounding Equipment Calibrations and Corrections Report** for details concerning the pneumogauge check form.

G.5 Frequently, sea conditions greater than one meter affected the fathogram, creating a trace of constant peaks and deeps. Launches are not equipped with heave, pitch and roll indicators. To compensate for this the sea action was scanned out and selected sounding depths were edited by the MT MITCHELL processing team.

G.6 a) The tidal datum for this project is mean lower low water. The operating tide station at Grand Isle, Louisiana (876-1724) served as reference station for predicted tides, and a tide station at East Isles Dernieres (876-2888) was established by ship's personnel as the direct control for datum determination. Predicted tidal data for Grand Isle tides was provided on floppy magnetic disk before the start of the project.

APPROVED TIDES WERE APPLIED DURING OFFICE PROCESSING

b) The height and time correctors listed below were provided in the Project Instruction for the project area, and applied to the Grand Isle predicted tides to generate an on-line predicted tide table:

HYDROGRAPHIC AREA	TIME		HEIGHT RATIO
	High	Low	
East of 090 30.0' W and West of 090 20.0' W	Water -30 min	Water -30 min	* 1.26

The tide tables were applied on-line and during processing of sounding data. For a more detailed overview of tidal information please refer to Appendix V.

c) No zoning is required for this project.

NOTE: For the least depths taken by pneumatic depth gauge or leadline during this project, the final value for the feature was determined by correcting the reading for predicted tides only. No instrument or leadline calibration correctors were applied. A buoy was placed over the least depth site and a DP was taken by the survey launch.

H. CONTROL STATIONS *SEE ALSO THE EVALUATION REPORT*

H.1 The horizontal datum for this project is the North American Datum of 1983 (NAD 83).

H.2 The list of Horizontal Control Stations is *APPENDED TO THIS REPORT*
~~located in Appendix III.~~

H.3 Three DGPS reference stations were used to control this survey. These are listed below. The position for the USCG Galveston beacon was provided by Hydrographic Surveys Branch on April 12, 1992 and is a Second Order Class I position. The position for the USCG New Orleans beacon was published via memo from Hydrographic Surveys Branch on July 16, 1993 and is a B-Order position. Station Muench was established by Coastal Survey Unit, Field Photogrammetry Section, Photogrammetry Branch, in 1989 for a NOAA Ship Whiting project. The Third Order Class I position for station Muench was obtained from the Field Photogrammetry Section and verified by MT MITCHELL personnel using the NOS MONITOR program.

<u>Reference Station</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Frequency</u>
USCG Beacon, Galveston, TX ¹⁹⁹³ GPS	29° 19' 45.09171" N	094° 44' 10.48430" W	296 kHz
USCG Beacon, New Orleans, LA ^{Point 1993}	29° 52' 43.87808" N	089° 56' 31.38025" W	293 kHz
Muench 1989, Grand Isle, LA ⁹³	29° 15' 57.30111" N ²⁸⁹	089° 57' 17.39008" W ⁸	2.7745 MHz & 6.9790 MHz

H.4 No horizontal control stations were established by the MT MITCHELL during this survey.

H.5 Refer to the **Electronic Control Report** submitted with this survey for a description of station recovery and verification procedures of station Muench. *FILED AT AHS*

H.6 No problems or anomalies were encountered in positioning control of this survey. There were three independent DGPS stations available for use. The NOAA HF station at Grand Isle served as the primary control. The USCG New Orleans beacon and USCG Galveston beacon were used only as DGPS check stations.

I. HYDROGRAPHIC POSITION CONTROL

I.1 The primary method of sounding position control was Differential Global Positioning System (DGPS).

I.2 At no time in this survey did the estimated position error consistently exceed 15 meters (1.5 mm at the survey scale). On occasion, DGPS correctors would not be received for a few seconds at a time. When this happens HDAPS goes into "DR Mode". Only when this occurred for 10 seconds or more, and when course steered was uncertain, did we reject data.

I.3 On each launch there is a GPS receiver, a beacon receiver for U.S.C.G. differential radiobeacons, and a receiver for our own HF beacon. The units used are as follows:

<u>VESSEL #</u>	<u>MODEL</u>	<u>S/N</u>	<u>DATES USED</u>
2223	Ashtech DGPS Receiver	700417B1197	July 19 - August 30
2223	Magnavox MX50R Beacon Receiver	313	July 19 - August 30
2223	LRD HF Beacon Receiver	204	July 19 - August 30

I.3 (cont'd)

2223	GPS Antenna	700391A0520	July 19 - August 30
2224	Ashtech DGPS Receiver	700417B1190	July 20 - August 29
2224	Magnavox MX50R Beacon Receiver	207	July 20 - August 29
2224	LRD HF Beacon Receiver	206	July 20 - August 29
2224	GPS Antenna	700378A0468	July 20 - August 29

I.4 As stated in section H.3, three DGPS reference stations were used: USCG Galveston, USCG New Orleans, and a NOAA HF Flyaway system at Grand Isle, LA. To ensure EPE's of less than 15 meters the following HDOP_{max}'s were determined using the formula from FPM section 3.4.2:

<u>Station</u>	<u>ESE</u>	<u>EDE</u>	<u>HDOP</u>
NOAA HF	4	1.17	3.6
USCG Galveston	4	5.15	2.3
USCG New Orleans	4	1.54	3.5

DGPS performance checks were performed daily prior to data collection by comparing positioning of two independent DGPS stations. The inverse distance between the two independent stations' computed positions was computed to ensure it did not exceed the EPE_{max} of 15 meters. Two methods were used. For the "two boats in the water method", both launches departed the ship and brought up HDAPS using different DGPS reference stations. As the launches came together the OIC's simultaneously marked their position and printed it out. The Easting and Northing values from each boat, along with the HDOP and number of satellites were entered into a spreadsheet for computation of position error. The other method, the "two boats in the davit method", is identical, except that the launches are in the davits operating under shore power. In the davits the launches GPS antennae are a known bearing and distance away; these are taken into consideration in the spreadsheet.

A copy of the spreadsheet and formulas, along with a more precise description of performance check techniques, can be found in the **Electronic Control Report**.

I.5 No calibration data is applied to the DGPS raw positioning data.

I.6 a) No unusual methods of operation were employed with the DGPS equipment.

b) The primary control was the NOAA HF beacon. Both launches used the NOAA HF beacon during each day of data acquisition. No other DGPS beacons were used for primary control.

c) On several occasions thunderstorms in the vicinity would block the incoming DGPS beacon signal. When this happens, HDAPS immediately starts to DR positions. When the beacon signal was lost for ten seconds or more, data was considered unacceptable, the line was broken and was rerun when good correctors returned. If the signal was lost for only a

I.6 (cont'd)

few seconds, and the OIC felt that the course was steady through the period, that data would not be rejected.

d) No weak signals or poor geometric configurations were observed.

e) No systematic errors were observed.

f) Antenna positions were corrected for offset and layback, and referenced to the position of the DSF-6000N transducer. These correctors were located in the HDAPS Offset table, and applied on-line to the positioning algorithm. Launch MI-3 (VesNo 2223) used offset tables 3 and 7; MI-4 (VesNo 2224) used table 4 and 8. The offset tables were updated midway through the project when the stern tow configuration was altered slightly. Refer to Separate III for a copy of offset tables used during this survey.

g) Offset and layback distances for the A-frame (tow point) were located in the HDAPS Offset table and applied on-line. These offsets, along with the cable length, towfish height, and depth of water, were used by the HDAPS system to compute the position of the towfish. For stern-tow configuration offset tables 3, 7, 4 and 8 were used. Refer to Separate III for offset tables. Dates for offset tables are as follows:

Launch 2223

Table 3	July 19 - July 21
Table 7	July 28 - August 30

Launch 2224

Table 4	July 20 - July 21
Table 8	July 28 - August 29

J. SHORELINE

No shoreline areas are present within the limits of this survey. *CONCUR*

K. CROSSLINES

Since this is an item investigation, side scan sonar survey, crosslines are not required.

WHERE CROSSINGS OCCUR, SOUNDINGS ARE IN ADEQUATE AGREEMENT

L. JUNCTIONS

This survey does not junction with any current basic or item investigation survey. *CONCUR*

M. COMPARISON WITH PRIOR SURVEYS *SEE ALSO THE EVALUATION REPORT*

M.1 The following surveys are the most recent prior surveys in the FE-390SS survey area:

<u>Registry #</u>	<u>Scale</u>	<u>Date</u>
H-6154	1:40,000	1936
H-6173	1:40,000	1936

M.2 Soundings from H-6154 and H-6173 were picked off and compared to observed depths. Almost all soundings from ~~the~~ this survey are deeper than those from H-6154 and H-6173. On average the observed depths are 1.5 meters deeper. There were no significant shoaling trends observed in this survey when compared with the 1936 surveys.

M.3 No significant features in the survey area are present on H-6154 or H-6173.

M.4 The general area is approximately 1.5 meters deeper than the 1936 depths. The deepening is, on average, uniform throughout the survey area.

M.5 There are no contemporary non-NOS surveys in this area.

N. ITEM INVESTIGATION REPORTS

There were five AWOIS items in the survey area. Descriptions are as follows:

AWOIS 8427

State and Locality: Louisiana, Eastern Ship Shoal

Charted Position: 28/52/40.30 N 090/48/05.20 W POSITION APPROXIMATE

Datum: MLLW Reported Depth: Visible

Type of Feature: Visible wreck, position approximate

Source: LNM 11/87 -- Add visible wreck (jack-up rig leg) in approximate position Lat. 28-52-48N, Long. 90-48-06W.

LNM 41/90 -- Relocate visible wreck (PA) to Lat. 28-52-40.9N, Long. 90-48-13.9W.

LNM 22/91 -- Relocate visible wreck (PA) to Lat. 28-52-40.3N, Long. 90-48-05.2W.

Survey Requirements: 200% side scan sonar coverage, 3000 meter search radius, diver investigation, salvage documentation.

AWOIS 8427 (cont'd)

Method of Investigation: A 3000 meter search radius was covered by 200% side scan sonar coverage. The lighted buoy "WR" mentioned in the AWOIS listing was found in its charted position of 28-52-42N, 90-48-06W. No contacts resembling the AWOIS description were observed in the vicinity of the buoy or in the search radius. *CONCUR*

Results of Investigation: No visible wreck was observed. There were significant contacts within the search radius, discussed hereafter. However, no contacts within the search radius conformed to anything resembling what could have been this wreckage.

Comparison with Prior Surveys: Refer to section M.

Comparison with Chart: Refer to section O. Although danger to navigation reports were filed, none were for this AWOIS item.

Recommendation: Delete visible wreck (PA) charted at Latitude 28° 52' 40.30" N
CONCUR Longitude 090° 48' 05.20" W. ✓

We also recommend that the Coast Guard remove buoy "WR" as it no longer marks any significant feature. *CONCUR, NO CHANGE IN CHARTING UNLESS RECEIVED INFORMATION INDICATES ITS REMOVAL.*

AWOIS 8428

State and Locality: Louisiana, Eastern Ship Shoal

Charted Position: 28/53/06.00 N 090/48/06.00 W POSITION APPROXIMATE

Datum: MLLW Reported Depth: Unknown

Type of Feature: Obstruction, position approximate

Source: NM 27/91 -- Add obstruction (PA) in approximate Lat. 28-53-06N, Long. 90-48-06W.

Survey Requirements: 400% side scan sonar coverage, 3000 meter search radius, diver investigation, salvage documentation

Method of Investigation: A 3000 meter search radius was covered by 200% side scan sonar coverage. As discussed in section E.4c of this report, the 400% side scan sonar coverage requirement was waived for this AWOIS item. Shoal waters prevented running the second 100% on a 90° angle to the first - all lines are East-West, with the second 100% at an offset to the first.

Results of Investigation: The search radius for AWOIS 8428 overlaps with the radii for

N. ITEM INVESTIGATION REPORTS - CONTINUED

AWOIS 8428 (cont'd)

AWOIS 8427 and AWOIS 8432. The only significant contact found in this search radius that is an obstruction is located 2,700 meters northwest of the reported position of AWOIS item 8428. See Development B later in this section for details concerning this contact. *PAGES 23 AND 24*

Comparison with Prior Surveys: Refer to section M.

Comparison with Chart: Refer to section O. No danger to navigation reports were filed for this AWOIS item.

Recommendation: Delete the ^{CHARTED} Obstruction (PA) at Latitude 28° 53' 06.00" N ✓
CONCUR Longitude 090° 48' 06.00" W.

AWOIS 8432

State and Locality: Louisiana, Eastern Ship Shoal

Charted Position: 28/51/30/.85 N 090/49/30.33 W

Datum: MLLW Reported Depth: Visible

Type of Feature: Wreck of 110 foot C/B "BRETON ISLAND"

Source: NM 9/69 -- 110 foot C/B "BETON ISLAND" reported sunk in block 114, Ship Shoal area, in approximate position Lat. 28-51-30N, Long. 90-49-30W showing above water. Marked by red lighted buoy flashing white 5 seconds with radar reflector. Buoy located 100 feet southeast of wreck.

Survey Requirements: 200% side scan sonar coverage, 3000 meter search radius, diver investigation, salvage documentation.

Method of Investigation: A 3000 meter search radius was covered by 200% side scan sonar coverage.

Results of Investigation: The search radius for AWOIS 8432 overlaps with the radii for AWOIS 8427 and AWOIS 8428. No contacts were observed at the charted AWOIS position. A contact resembling this AWOIS item was found 1050^{25.8} meters northwest of the charted AWOIS location (see sketch on next page). The contact was determined by divers to be the inverted hull of a flat bottom boat or barge, approximately 110 feet in length. Diver descriptions of the wreck resemble the AWOIS description for item 8432, although positive identification of the wreck was not possible. The pneumogauge least depth on the hull was

N. ITEM INVESTIGATION REPORTS - CONTINUED

AWOIS 8432 (cont'd)

7.3 meters, reduced to MLLW with predicted tides, at Lat. 28-51-59.10N, Long. 090-49-50.35W. The average surrounding water depth is 11.3 meters, reduced to MLLW with predicted tides. See Separate VI for more details of the dive investigation, *APPENDED TO FA15 REPORT*

No other contacts resembling this AWOIS item were found in the search area.

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	202	5232.73	SSS 100%
	202	5357-5371	DEVELOPMENT
	209		DIVE OPS E1 <i>TIME: 214300</i>
	210	5708 ✓	DIVE OPS E1, LEAST DEPTH POSITION

Comparison with Prior Surveys: Refer to section M.

Comparison with Chart: Refer to section O. A danger to navigation report was filed for this AWOIS item.

Recommendation: Delete ^{*CHARTED*} Visible Wreck (PA) at Latitude ~~28° 55' 12.85"~~ ^{*51' 30.85"*} N ✓
Longitude ~~090° 35' 00.31"~~ ^{*49' 30.33"*} W.
Chart Submerged Wreck at Latitude 28° 51' 59.10" N ✓
DIVER Least depth = ~~7.3~~ ^{*24.3*} meters Longitude 090° 49' 50.35" W.
~~23.9~~ ^{*24.3*} feet
Reduced to MLLW ~~with predicted tides~~ *CONCUR.*
CHART AS A WRECK WITH A LEAST DEPTH OF 7.4 M (7' WK)

AWOIS 8436

State and Locality: Louisiana, Eastern Ship Shoal

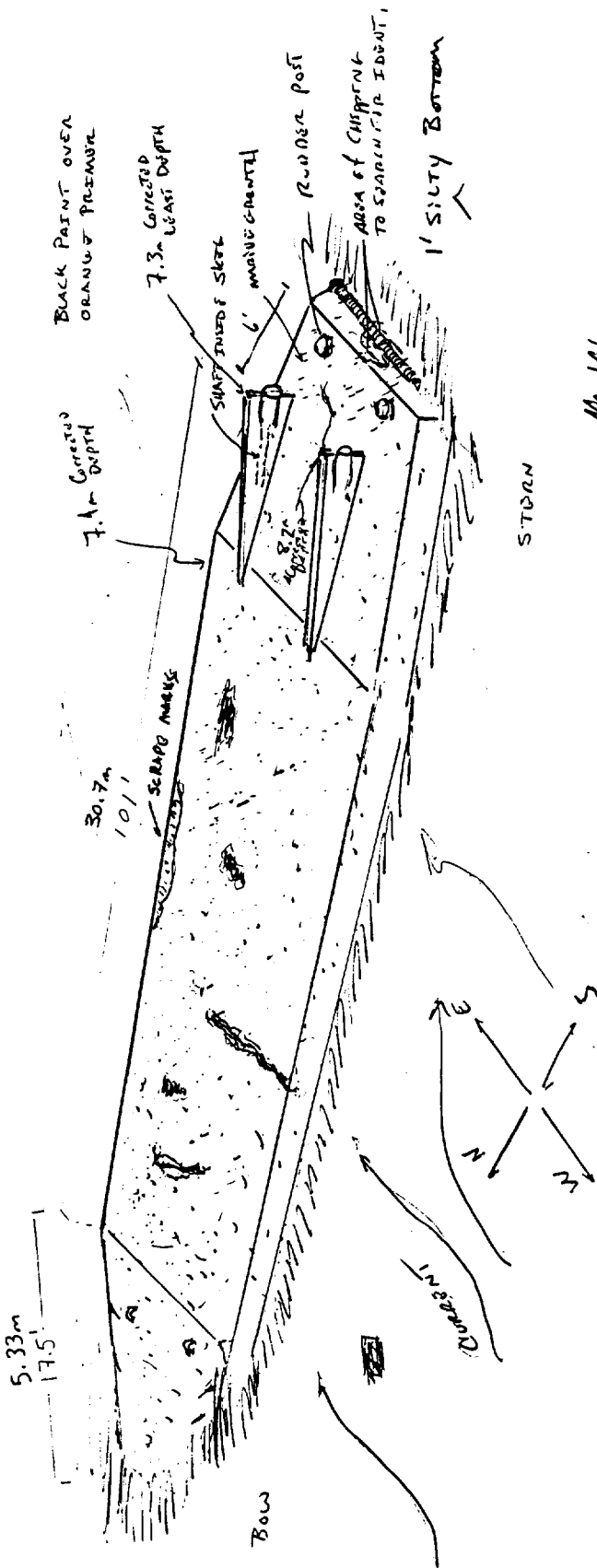
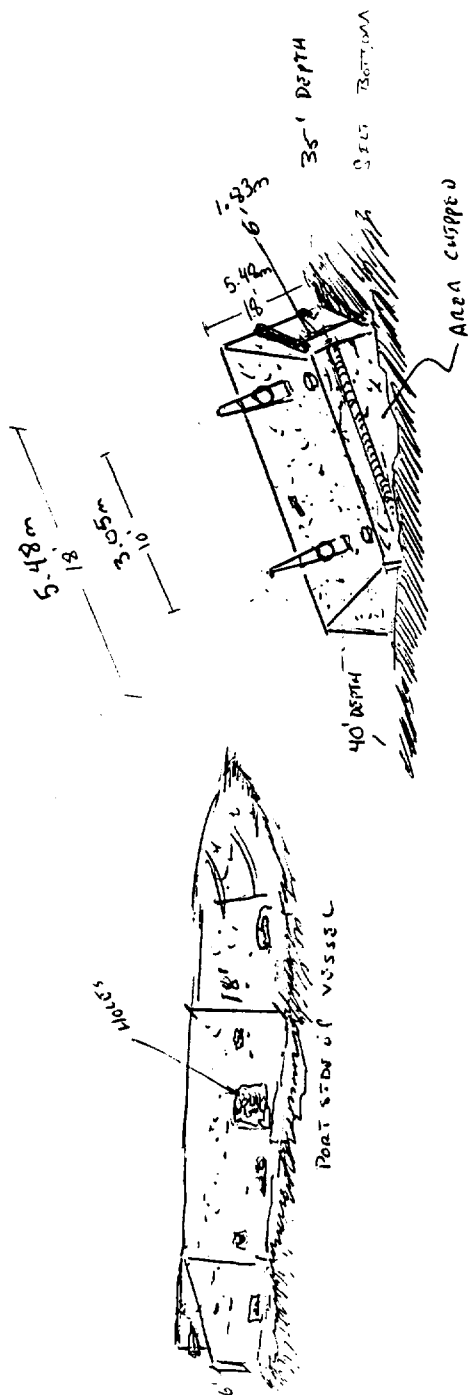
Charted Position: 28/52/51.00 N 090/50/03.00 W

Datum: MLLW Reported Depth: Unknown

Type of Feature: Obstruction, Position Approximate

Source: Letter, dated 10/2/92, from Commander, Eighth Coast Guard District. Large piece of wreckage located in approximate position Lat. 28-52-51N, Long. 90-50-03W. Marked by a temporary Isolated Danger mark. Wreckage needs to be identified so that its owner may be advised to initiate removal procedures.

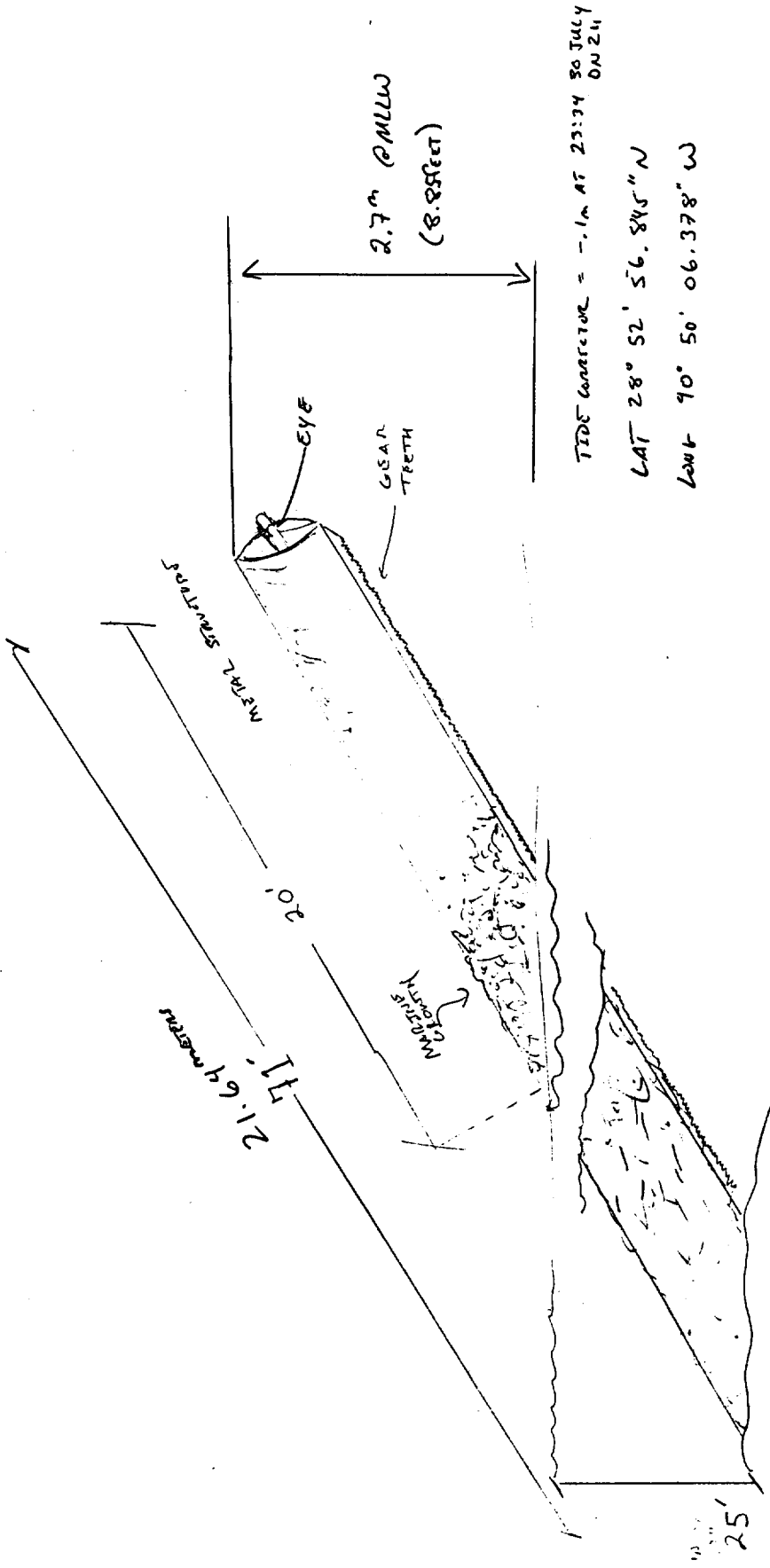
DIVE SITE E1



Marked
 1000 ft down

AKOTS 8436

E2



Handwritten signature and text: "Handwritten signature and text: 'MICHAEL J. SIMON' and 'AKOTS 8436'".

N. ITEM INVESTIGATION REPORTS - CONTINUED

AWOIS 8436 (cont'd)

Survey Requirements: 400% side scan sonar coverage, 500 meter search radius, diver investigation, salvage documentation.

Method of Investigation: The search radius for this AWOIS item falls within the 3000 meter radius for AWOIS item 8432. A 500 meter search radius was covered by 200% side scan sonar coverage. The 300% and 400% coverage were not necessary for this item since the item was found as part of the investigation in the larger search radius.

Results of Investigation: This AWOIS item was found 200 meters north-northwest of the charted AWOIS location. The item was determined by visual inspection and dive investigation to be the wreck of a jack-up rig leg (see pictures and sketch on previous two pages). The leg extends out of the water at approximately 30 degrees from the horizontal and has a height above water of 2.3 meters, reduced to MLLW, with predicted tides. The depth of water is 7.7 meters, reduced to MLLW, with predicted tides. The HDAPS detached position indicates the item is located at Lat. 28-52-56.84"N, Long. 090-50-06.38"W. There are no lights, bells or markings on this item. See Separate VI for more details of the dive investigation. *APPENDED TO THIS REPORT.*

Survey personnel were not able to determine ownership of the item as requested by the Eighth Coast Guard District.

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	200	1042	INITIAL RECONNAISSANCE OF AREA
	209		DIVE OPS E2
	211	5793	DEVELOPMENT/POSITION
	228	6585 5793	PLATFORM/WELLHEAD DP'S

Comparison with Prior Surveys: Refer to section M.

Comparison with Chart: Refer to section O. A danger to navigation report was not filed for this AWOIS item.

Recommendation: Chart Visible Obstruction at Latitude 28° 52' 56.84" N
CONCUR Longitude 090° 50' 06.38" W.

CHART AS AN OBSTRUCTION (RIG LEG) THAT BARES 2.3 M (7 FT)

AWOIS 8437

State and Locality: Louisiana, Eastern Ship Shoal

Charted Position: 28/51/33.00 N 090/50/11.00 W

Datum: MLLW Reported Depth: Unknown

N. ITEM INVESTIGATION REPORTS - CONTINUED

AWOIS 8437 (cont'd)

Type of Feature: Submerged Obstruction, Position Approximate

Source: Letter, dated 10/2/92, from Commander, Eighth Coast Guard District. A 120 foot crew boat struck an unidentified submerged obstruction in approximate position Lat. 28-51-33N, Long. 90-50-11W. Boat seriously damaged and nearly sank.

Survey Requirements: 400% side scan sonar coverage, 500 meter search radius, diver investigation, salvage documentation.

Method of Investigation: A 500 meter search radius was covered by 400% side scan sonar coverage.

Results of Investigation: No submerged obstructions were found in this search radius. However, 100 meters north-northwest of the reported AWOIS location a wellhead was discovered extending approximately 10 meters out of the water (see pictures on next page). This item extends from the water at an angle of 10 - 15 degrees from vertical, indicating that it may have been struck by a passing vessel. The depth of water is 11.2 meters, reduced to MLLW with predicted tides. The HDAPS detached position indicates the item is located at Lat. 28-51-~~37~~^{36.11}57N, Long. 090-50-10.~~57~~⁴²W. The wellhead is currently equipped with a bell and light.

No other contacts resembling this AWOIS item were found within the search area.

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	200	1043	INITIAL RECONNAISSANCE OF AREA
	228	6561 ✓	PLATFORM/WELLHEAD DP'S

Comparison with Prior Surveys: Refer to section M.

Comparison with Chart: Refer to section O. A danger to navigation report was not filed for this AWOIS item since it is equipped with a light and bell.

Recommendation: Chart Lighted Wellhead at Latitude 28° 51' 36.¹¹~~09~~" N
Carver Longitude 090° 50' 10.41²~~4~~" W.

This wellhead is the same wellhead mentioned in Section O.4, DP number 6561.

Other Contacts

As stated previously, several contacts were discovered and entered into the contact tables. Most of the items were later labeled "No Further Investigation". After careful examination of fathograms and sonargrams, most of these contacts were explained away as bottom texture characteristics, sea state interference, fathometer/side scan interference, depressions and scours, fish, or small pieces of scrap metal and other rig garbage. Although many of these

N. ITEM INVESTIGATION REPORTS - CONTINUED

Other Contacts (cont'd)

are actual contacts on the bottom, the majority of them are not noteworthy for charting purposes.

Two additional contacts, not mentioned above, were thought to be significant, however, and were developed using 25, 50 or 75 meter side scan sonar coverage. If the side scan development left the possibility of the contact being a danger to navigation it was further investigated with dive operations.

Development A

LAT: 28° 51' 39.338" N WATER DEPTH (RAW): 10.4 meters
LONG: 090° 50' 48.600" W CONTACT HEIGHT FROM SSS: 1.2 meters

<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	201	1198.40,1198.27	SSS 100%
	212	1929.15,1929.26	SSS 200%
	241	6719-6730	DEVELOPMENT

Results of Investigation: The contact pair was first seen on DN 201 and was initially considered insignificant and therefore not entered in the contact tables. The contact pair was seen again on DN 212 with a contact height of 1.2 meters. The contact pair was entered into the contact tables for item development at a later time.

On DN 241 the site was developed with 50 meter and 75 meter range scale. This development revealed several insignificant contact heights for the contact pair. No diver investigation was done for this development. This item is not significant enough for further investigation. *CONCUR. NO CONTACTS ARE SHOWN ON THE PRESENT.*

Recommendation: ~~Do not chart.~~ *NONE*

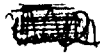
Development B

LAT: 28° 54' 11.¹⁴18" N WATER DEPTH (RAW): 6.6 meters
LONG: 090° 49' 02.¹⁴701" W CONTACT HEIGHT FROM SSS: 0.9 meters

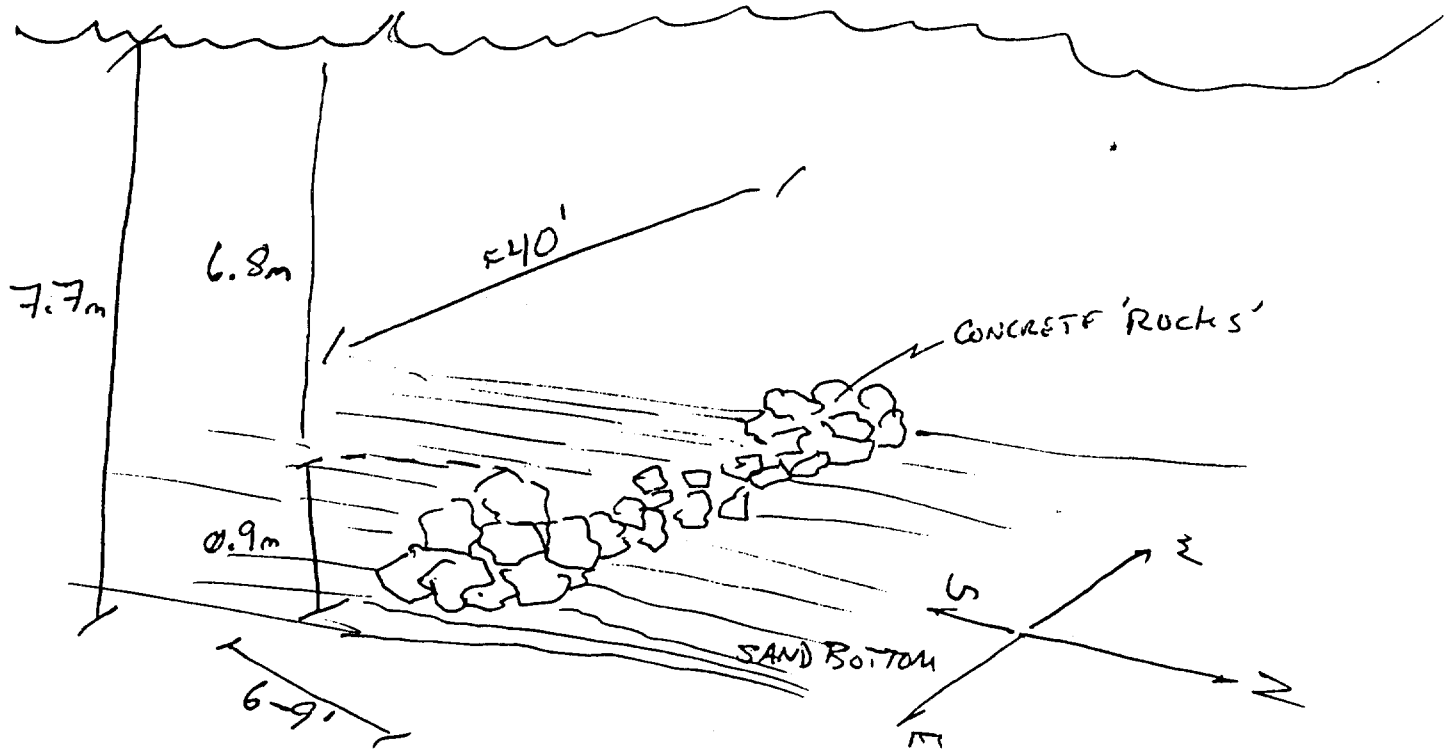
<u>History:</u>	<u>DN</u>	<u>REF. FIX #'S</u>	<u>ACTIVITY</u>
	224	6067.77	SSS 100%
	225	6327.71	SSS 200%
	241	2902-2917 ✓	DEVELOPMENT, DIVE OPS E3 <i>DIVE TIME: 181700</i>

Results of Investigation: The side scan sonar development of this item confirmed that the item was significant enough for a diver investigation. Divers found a mound of concrete

E3



Sketch



Michael P. Sonaglio
MICHAEL P. SONAGLIO EMS/NOAA

N. ITEM INVESTIGATION REPORTS - CONTINUED

Development B (cont'd)

rubble projecting approximately 1 meter above the bottom (see sketch on previous page).
The pertinent information is as follows:

Leadline depth of water (with ~~predicted~~ tides) = 7.7 meters
Leadline least depth of item (with ~~predicted~~ tides) = 6.8 meters

Fathometer depth of water (with ~~predicted~~ tides, offset, and velocity) = 7.9 meters
Fathometer least depth of item (with ~~predicted~~ tides, offset, and velocity) = 6.9 meters
2

See Separate VI for more details of the dive investigation. *APPENDED TO THIS REPORT*

NOTE: A danger to navigation report was filed for this item.

Recommendation: Chart Submerged Obstruction at Latitude 28° 54' 11.118" N
FATHOMETER Least depth = 6.8² meters (22.3 ft) Longitude 090° 49' 02.701" W.
Reduced to MLLW with ~~predicted~~ tides *CONCUR* 1

O. COMPARISON WITH THE CHART *SEE ALSO THE EVALUATION REPORT*

O.1 The following charts are affected by this survey:

<u>Chart #</u>	<u>Edition</u>	<u>Date</u>	<u>Scale</u>
11340	55th	September 12, 1992	1:458,596
11357	28th	April 25, 1992	1:80,000
11356	30th	July 25, 1992	1:80,000

During the period of survey operations, there have been no pertinent notice to mariner updates from the above charts affecting the survey area. Chart 11357 is due to have a new edition released in July, 1993.

O.2 a) A danger to navigation report referencing one item (refer to AWOIS item 8432) was submitted on 30 July 1993. A copy of the report is ~~included in Appendix I.~~ *APPENDED TO THE EVALUATION REPORT*

O.2 b) The following new dangers to navigation were found:

<u>Item</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Position Number</u>
Subm.			
Wreck	28° 51' 59.105 ² " N	090° 49' 50.356 ⁶ " W	5708.0
Subm.			
Obstruction	28° 54' 11.118 ⁴ " N	090° 49' 02.701 ¹ " W	2917.0

O.3 The charted soundings from charts 11356 and 11357 which lie in the search radii were compared to soundings from this survey. On average soundings from this survey are 1.5 meters deeper than the charted depths. This deepening trend appears to be uniform over the entire survey area. Sounding data from this survey should supersede prior survey data.
PRESENT HYDROGRAPHY IS ADEQUATE TO SUPERSEDE THE CHART IN THE COMMON AREA
 There are no maintained channels, safety fairways, or traffic schemes within the survey area.

O.4 The following non-sounding features are in the survey area:

Note: Heights are estimates. Positions are taken from the HDAPS Detached Position utility.

<u>Item</u>	<u>Designation</u>	<u>DP Fix</u>	<u>Height</u>	<u>Misc.</u>	<u>Lat.</u>	<u>Lon.</u>
A Platform	MURPHY SS 114 A	6533	15 meters	bell, light	28/50/00.1 ⁸	090/49/53.6 ⁵
B Wellhead	none	6535	8 meters	bell, light	28/50/29.6 ⁹	090/49/45.55
C Wellhead	none	6536	8 meters	bell, light	28/50/29.3 ³	090/50/00.8 ⁹ 90
D Platform	MEPCO SS 114 51	6537	15 meters	bell, light	28/50/26.4 ⁵	090/50/19.19
Buoy	MURPHY SS 114	6538	2 meters	red, light	28/50/17.8 ⁹	090/50/26.29
E Wellhead	none	6539	8 meters	bell, light	28/50/14.1 ⁵	090/50/30.5 ⁶
F Platform	MEPCO SS 114 H	6540	15 meters	bell, light	28/50/10.0 ²	090/50/32.1 ²
G Wellhead	MEPCO SS 114 47	6541	8 meters	bell, light	28/50/08.3 ¹	090/50/34.87
Wellhead	MEPCO SS 113 41	6542	8 meters	bell, light	28/50/21.0 ⁹	090/50/58.58
H Wellhead	MEPCO SS 113 29	6543	8 meters	bell, light	28/50/12.6 ⁴	090/50/52.76
J Wellhead	MEPCO SS 113 16	6544	8 meters	bell, light	28/50/10.8 ⁹	090/50/51.60
K Wellhead	MEPCO SS 113 40	6545	8 meters	bell, light	28/50/02.2 ⁹	090/50/50.43
Wellhead	MEPCO SS 113 46	6546	8 meters	bell, light	28/50/11.1 ⁶	090/51/05.5 ⁸
Wellhead	none	6547	4 meters	bell, light	28/50/13.9 ⁸	090/51/04.7 ⁹
Buoy	MURPHY SS 113	6548	2 meters	red, light	28/51/18.2 ²	090/51/21.5 ²
Wellhead	none	6549	6 meters	bell, light	28/51/33.7 ⁶	090/51/17.42
Wellhead	MURPHY SS 112 51	6550	8 meters	bell, light	28/51/36.5 ⁷	090/51/04.42
Wellhead	MURPHY SS 113 N	6551	8 meters	bell, light	28/51/44.7 ³	090/51/10.16
Wellhead	MURPHY SS 94 17	6552	10 meters	bell, light	28/51/54.1 ⁸	090/51/17.2 ⁹ 30
Wellhead	MURPHY SS 94 S	6553	8 meters	bell, light	28/51/49.6 ⁸	090/51/02.85
Wellhead	MURPHY SS 94 19	6554	8 meters	bell, light	28/52/07.3 ⁸	090/51/02.9 ¹
Wellhead	MURPHY SS 93 37	6555	4 meters	bell, light	28/52/04.2 ⁷	090/50/40.8 ⁹ 90
L Wellhead	none	6556	4 meters	bell, light	28/52/14.6 ⁴	090/52/27.8 ²
M Wellhead	MURPHY SS 94 6	6557	8 meters	bell, light	28/52/18.0 ⁸	090/50/46.74
N Platform	MURPHY SS 114 L,J	6558	20 meters	bell, light	28/51/41.1 ⁶	090/49/41.5 ¹
O Wellhead	MEPCO SS 114 23	6559	8 meters	bell, light	28/51/32.8 ⁷	090/50/01.06
P Wellhead	none	6560	8 meters	bell, light	28/51/16.9 ³	090/49/54.6 ²
Wellhead	none	6561	10 meters	bell, light	28/51/36.0 ³	090/50/10.4 ² * — *
Wellhead	MURPHY SS 93 62	6562	8 meters	bell, light	28/51/48.8 ⁶	090/50/34.6 ⁵
Q Wellhead	MURPHY SS 94 20	6563	4 meters	bell, light	28/51/56.6 ²	090/50/46.38
R Wellhead	none	6564	4 meters	bell, light	28/49/51.1 ⁸	090/50/32.01
S Wellhead	MEPCO SS 114 12	6565	4 meters	bell, light	28/50/05.1 ³	090/50/24.18
T Wellhead	MEPCO SS 114 15	6566	8 meters	bell, light	28/50/10.2 ⁸	090/50/16.30
U Wellhead	none	6567	4 meters	bell, light	28/50/20.1 ⁶	090/50/07.32
V Wellhead	MURPHY SS 93 0	6568	8 meters	bell, light	28/52/24.6 ⁸	090/49/30.20
W Wellhead	MURPHY SS 93 45	6569	8 meters	bell, light	28/52/51.1 ⁶	090/49/07.4 ²
X Wellhead	MURPHY SS 93 22	6570	8 meters	bell, light	28/53/25.8 ⁸	090/48/41.29
Y Wellhead	MURPHY SS 93 18	6571	8 meters	bell, light	28/53/29.4 ⁹	090/48/31.98
Wellhead	none	6572	8 meters	bell, light	28/53/38.6 ⁸	090/48/35.6 ⁵
Z Wellhead	MURPHY SS 93 13	6573	8 meters	bell, light	28/53/40.1 ⁷	090/49/03.88

* WITH THE EXCEPTION OF POS. 6561, ALL DPs THAT SHOW "WELLHEAD" ON PAGE 25/26 ARE SHOWN ON THE PRESENT SURVEY AS "PLATFORMS"

O.4 (cont'd)

AA	Wellhead	MURPHY SS 93 17	6574	8	meters	bell, light	28/53/47.5 ⁴	090/49/12.54	
BB	Wellhead	MURPHY SS 93 44	6575	8	meters	bell, light	28/53/50.3 ⁷	090/49/46.0 ³	
	Wellhead	MEPCO SS 93 51	6576	8	meters	bell, light	28/53/57.7 ³	090/49/51.5 ⁸	
	Wellhead	MEPCO SS 93 49	6577	8	meters	bell, light	28/54/03.0 ⁴	090/49/52.1 ⁶	
	Wellhead	MURPHY SS 93 40	6578	8	meters	bell, light	28/53/59.2 ⁴	090/49/58.14	
CC	Wellhead	MEPCO SS 93 47	6579	8	meters	bell, light	28/53/59.4 ⁴	090/49/43.3 ⁵	
DD	Wellhead	MEPCO SS 93 43	6580	8	meters	bell, light	28/53/33.8 ³	090/49/50.0 ²	
	Piling	none	6581	6	meters	bell, light	28/53/32.17	090/49/49.48	SAME AS POS. 5794
EE	Wellhead	MURPHY SS 93 M	6582	8	meters	bell, light	28/53/30.4 ⁷	090/49/33.33	
FF	Wellhead	MURPHY SS 93 38	6583	8	meters	bell, light	28/53/10.6 ²	090/49/44.15	
GG	Wellhead	MURPHY SS 93 35	6584	6	meters	bell, light	28/53/02.9 ⁴	090/49/50.86	
	Rig Leg	none	6585	2	meters		28/52/56.67	090/50/06.05	**
HH	Wellhead	MURPHY SS 93 32	6586	6	meters	bell, light	28/52/55.7 ²	090/50/12.6 ⁷	
	Wellhead	MURPHY SS 93 39	6587	8	meters	bell, light	28/53/01.5 ⁸	090/50/17.35	
	Wellhead	MURPHY SS 93 53	6588	6	meters	bell, light	28/53/12.9 ³	090/50/10.4 ³	
	Wellhead	MURPHY SS 93 31	6589	6	meters	bell, light	28/53/21.0 ⁴	090/50/13.15	
	Wellhead	MURPHY SS 93 9	6590	8	meters	bell, light	28/52/48.8 ¹	090/50/40.0 ³	
JJ	Wellhead	MURPHY SS 93 6	6591	6	meters	bell, light	28/52/32.3 ⁴	090/50/41.3 ¹	
	Wellhead	MURPHY SS 92 8	6592	8	meters	bell, light	28/53/34.0 ³	090/47/44.76	
	Wellhead	MEPCO SS 92 3	6593	8	meters	bell, light	28/53/11.5 ²	090/46/22.4 ⁹	
	Wellhead	MURPHY SS 93 48	6597	8	meters	bell, light	28/53/24.7 ⁹	090/50/00.7 ¹	
	Wellhead	none	6598	8	meters	bell, light	28/52/57.1 ⁵	090/50/31.4 ²⁰	
KK	Wellhead	MEPCO SS 114 46	6599	8	meters	bell, light	28/49/57.8 ²	090/50/27.59	
LL	Wellhead	MEPCO SS 92 7	6600	8	meters	bell, light	28/52/28.2 ³	090/47/42.4 ⁵	
	Buoy	WR	6601	2	meters	red, light	28/52/41.1 ⁶	090/48/06.9 ⁸	

* Corresponds to item in AWOIS 8437 description mentioned earlier in this section.

** Corresponds to item in AWOIS 8436 description mentioned earlier in this section.

The 6⁵ items listed above represent all of the permanent features visible above the water line within the boundaries of the survey sheet. We are confident that no visible feature within the survey boundary was overlooked. The majority of the items are wellheads and platforms. Of the three buoys listed above, only one ("WR") is maintained by the Coast Guard.

When the geographic positions of these non sounding features were compared to the charted positions, less than 20% of the wellheads and platforms were accurately charted. It is recommended that all wellheads, platforms, privately maintained buoys, and visible obstructions which lie within the sheet boundaries be recharted using the positions from this survey. *CONCUR*

O.5 No changes to the scale or coverage of the published charts of the survey are recommended. We discovered that the when referring to positions for navigation use, all local people use the offshore oil and gas leasing block coordinate system created by the Bureau of Land Management. This includes oil rig and platform tenders, Department of Minerals, and the U.S. Coast Guard. Either the overprinting of block designations on the charts, or two sided charts with block descriptions on one side, will increase the suitability of the charts for the local community.

P. ADEQUACY OF SURVEY *SEE ALSO THE EVALUATION REPORT*

P.1 All AWOIS items reported on this sheet have been resolved.

P.2 This survey is adequate for the purpose of updating the wrecks, obstructions and fixed objects in the survey area, as well as the updating of the charted sounding data.

As mentioned in Section E.6 of this report, there are six small areas of the survey where only 100% side scan sonar coverage was obtained. The side scan records for these areas were carefully rechecked for contacts. No contacts were found. We are confident that these areas do not adversely effect the adequacy of this survey. *CONCUR*

Q. AIDS TO NAVIGATION

Q.1 The MT MITCHELL conducted no correspondence with the U.S. Coast Guard regarding floating aids to navigation.

Q.2 There is one Coast Guard maintained aid to navigation on this survey sheet. This lighted red buoy is designated "WR" and was established to mark the visible wreck of a jack-up rig leg. The rig leg was later reported not visible. See Section N of this report and the AWOIS Listing for more information. Item investigation from this survey showed no wreckage or obstruction in the vicinity of buoy "WR". *SEE PAGE 18 OF THIS REPORT FOR CHARTING RECOMMENDATION OF THIS BUOY*

There are two other lighted red buoys on the survey sheet. These buoys are ^{PRIVATELY} maintained by companies owning or leasing the local wellheads and platforms. *THESE BUOYS ARE NOT CHARTED. NO CHANGE IN CHARTING IS RECOMMENDED.*

Q.3 No other aids were located during the survey.

Q.4 No bridges, overhead cables or pipelines are within the survey limits.

Q.5 a) No submarine cables crossing to shore are present within the survey limits.

b) There are several submarine pipelines within the survey limits. These pipelines form a network connecting the wellheads and platforms in the area.

c) There are no ferry routes in the survey area.

Q.6 There are no ferry terminals in the survey area.

R. STATISTICS

	<u>VN 2223</u>	<u>VN 2224</u>	<u>Total</u>
R.1 a) Number of positions:	1952	1730	3682
b) Lineal nautical miles of SSS/sounding lines:	340.7	307.4	648.1
R.2 a) Total square nautical miles of hydrography:	25.8	20.8	46.6
b) Total days of production:	16	14	17
c) Detached positions:	3	72	75
d) Bottom samples			0
e) Tide stations:			1
f) Current stations			0
g) Velocity casts:			6
h) Magnetic stations			0
i) XBT drops			0
j) Dives:			15

No bottom samples, current stations, magnetic stations or XBT drops were established or performed.

S. MISCELLANEOUS

- S.1** a) No unusual silting was noted during this survey.
- b) All unusual submarine features have been discussed previously.
- c) No anomalous tidal conditions were encountered.
- d) There is a current running in an East-West direction in the project area. The current can be as strong as 1.5 knots.
- e) No magnetic anomalies were encountered during this survey.
- S.2** No bottom samples were submitted to the Smithsonian Institution.

T. RECOMMENDATIONS

T.1 All inadequacies have been noted in Section E.6.

T.2 There is no present or planned construction or dredging that will affect results of this survey. However, this area is densely populated with oil rigs, platforms, and wellheads. It is probable that additional items may appear, or existing items may move, due to the dynamic nature of the oil industry.

T.3 This survey should supersede all other prior AWOIS reports. No further investigation of this area is recommended.

U. REFERRAL TO REPORTS

MT MITCHELL Electronic Control Report - Project OPR-SK904-MI-93

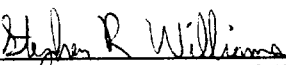
Sounding Equipment Calibrations and Corrections Report - Project OPR-SK904-MI-93

User Evaluation Report

Coast Pilot Report

SUBMITTAL SHEET
Survey FE-390SS

This descriptive report accurately describes all activities pertaining to the control, collection and processing of data for this survey, and is respectfully submitted by:

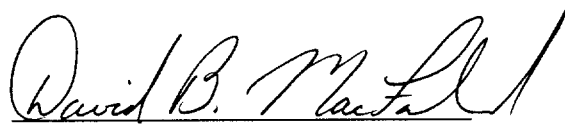


Ensign Stephen R. Williams, NOAA

Letter of Approval

Registry No. FE-390SS

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and field sheets have been closely reviewed and are considered complete and adequate for updating the AWOIS database.

A handwritten signature in black ink, appearing to read "David B. MacFarland", written over a horizontal line.

David B. MacFarland, CAPT, NOAA
Commanding Officer
NOAA Ship MT MITCHELL

APPENDIX III

List of Horizontal Control Stations

Station 001 - MUENCH ⁹³~~1989~~

LAT: 29° 15' 57.²⁸⁹~~30111~~" N
LONG 089° 57' 17.⁸⁰~~39008~~" W

ANTENNA ELEVATION: -22.555 meters

CARTOGRAPHIC CODE: ~~890~~ 250

SOURCE: Coastal Survey Unit, from a 1989 Whiting survey.

^{ROWL, 1993}
Station 002 - ~~United States Coast Guard, English Turn, Louisiana Differential Beacon~~

LAT: 29° 52' 43.⁸⁹⁴~~87808~~" N
LONG 089° 56' 31.³⁴²~~38205~~" W

ANTENNA ELEVATION: -23.85 meters

CARTOGRAPHIC CODE: ~~890~~ 250

SOURCE: Hydrographic Surveys Branch, July 16, 1993.

^{GPS, 1993}
Station 003 - ~~United States Coast Guard, Galveston, Texas Differential Beacon~~

LAT: 29° 19' 45.09171" N ✓
LONG 094° 44' 10.48430" W ✓

ANTENNA ELEVATION: -20.154 meters

CARTOGRAPHIC CODE: ~~890~~ 250

SOURCE: Hydrographic Surveys Branch, April 12, 1992.



GEOGRAPHIC NAMES

FE-390 SS

Name on Survey

A ON CHART NO. 11356
11357
B ON PREVIOUS SURVEY
NO.C ON U.S. QUADRANGLE
MAPS
D FROM LOCAL
INFORMATIONE ON LOCAL MAPS
F P.O. GUIDE OR MAP
G RAND McNALLY
ATLASH U.S. LIGHT LIST
K

DERNIERS, ISLES (title)	X									1
LOUISIANA (title)	X									2
MEXICO, GULF OF	X									3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
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										21
										22
										23
										24
										25

Approved:

Charles E. Harrington
Chief Geographer - N/CG-245

JUL - 5 1994

**NOAA SHIP MT. MITCHELL
DIVER INVESTIGATION REPORT**

Dive Operations Information:

DATE/DN: 28 JULY / 209

Project/Sheet: SK964E93/M1-10393

Dive Supervisor: LTJG Hulsbeck

Dive Item #: E1

Vessel #: MPL1

AWOIS #: _____

DIVE # _____
DIVERS: Hulsbeck, Suraco Surface Interval/RNT: 4th 273
TIME IN: 1448 DEPTH: 35 feet
TIME OUT: 1522 Bottom Time: 29 minutes
Diver Type (Letter Class): _____

DIVE DESCRIPTION: DUSCE. Don Buoy 8m W.

DIVERS DESCENDED DOWN BUOY LINE POSITIONED 8m ~~W~~ EAST OF ITEM. UPON SIGHT OF THE ITEM, DIVERS SWAM THE LENGTH TOWARDS THE DON & THEN TO STEER. MEASUREMENTS WERE TAKEN OF THE LENGTH, BEAM, HEIGHT OF BOTTOM. THE HULL WAS FURTHER INSPECTED.

DIVE # 2
DIVERS: HULSBECK / PAVELLE Surface Interval/RNT: 50m / 273
TIME IN: 1637 DEPTH: 40
TIME OUT: 1708 Bottom Time: 31 ~~29~~
Diver Type (Letter Class): _____

DIVE DESCRIPTION: 18' off Bottom.

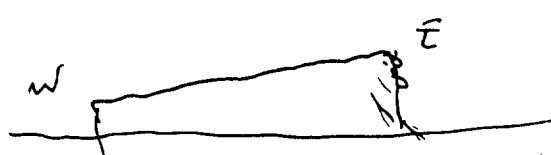
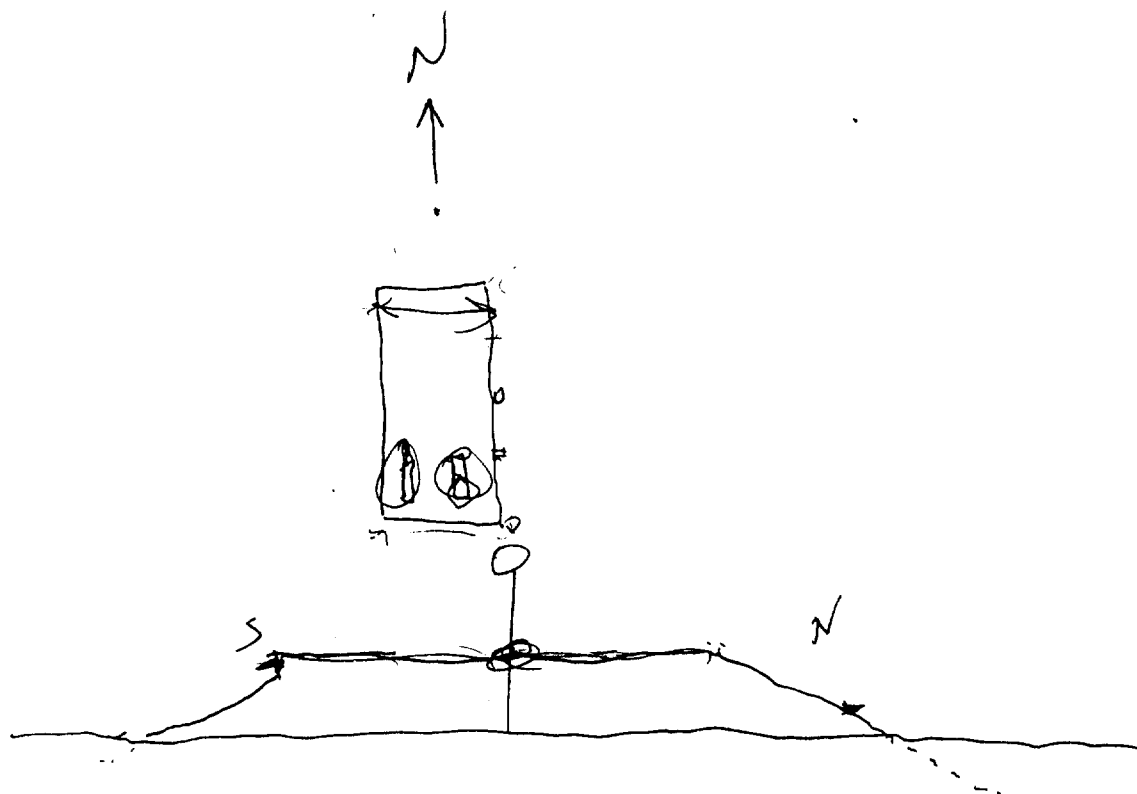
DIVERS DESCENDED DOWN BUOY LINE INTO ITEM. DIVERS TOOK LEAST DEPTH MEASUREMENTS AT 3 PLACES AND MADE PHYSICAL/DIMENSIONAL MEASUREMENTS WITH MEASURING TAPE.

DIVE # 3
DIVERS: SARACCO / PAVELLE Surface Interval/RNT: 48
TIME IN: 1756 DEPTH: 25
TIME OUT: 1803 Bottom Time: 7
Diver Type (Letter Class): _____

DIVE DESCRIPTION: 71 ft overall length

DIVE # _____
DIVERS: _____ Surface Interval/RNT: _____
TIME IN: _____ DEPTH: _____
TIME OUT: _____ Bottom Time: _____
Diver Type (Letter Class): _____

DIVE DESCRIPTION: _____



NOAA SHIP MT. MITCHELL DIVER INVESTIGATION REPORT

Dive Operations Information:

DATE/DN: 29 JUL / 210

Project/Sheet: SK904E93 / MZ-10-03-93

Dive Supervisor: LTSG HUGBECK

Dive Item #: E1

Vessel #: 2221

AWOIS #: _____

DIVE # 1

DIVERS: SORACCO, PAVELLE Surface Interval/RNT: 39
TIME IN: 1117 DEPTH: 70 feet
TIME OUT: 1158 Bottom Time: 41 minutes
Diver Type (Letter Class): F

DIVE DESCRIPTION:

DIVERS POSITIONED BODY FOR ACCURATE DP. THEY THEN DROVE TO CHIP AT BARNICOTS
TO TRY TO ID VESSEL.

Fix 5708

DIVE # 2

DIVERS: SORACCO, PAVELLE Surface Interval/RNT: _____
TIME IN: 1237 DEPTH: 40
TIME OUT: 1317 Bottom Time: 37
Diver Type (Letter Class): _____

DIVE DESCRIPTION:

DROVE CONTINUING CHIPPING AT BARNICOTS. NO POSITIVE ID. of VESSEL.
DEFINITELY A BOAT - RUDDER POSTS & SHAFT WERE SEEN. VESSEL WAS
BLACK w/ ORANGE PRIMER.

DIVE

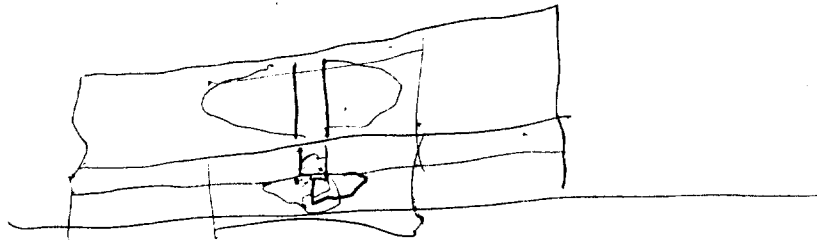
DIVERS: _____ Surface Interval/RNT: _____
TIME IN: _____ DEPTH: _____
TIME OUT: _____ Bottom Time: _____
Diver Type (Letter Class): _____

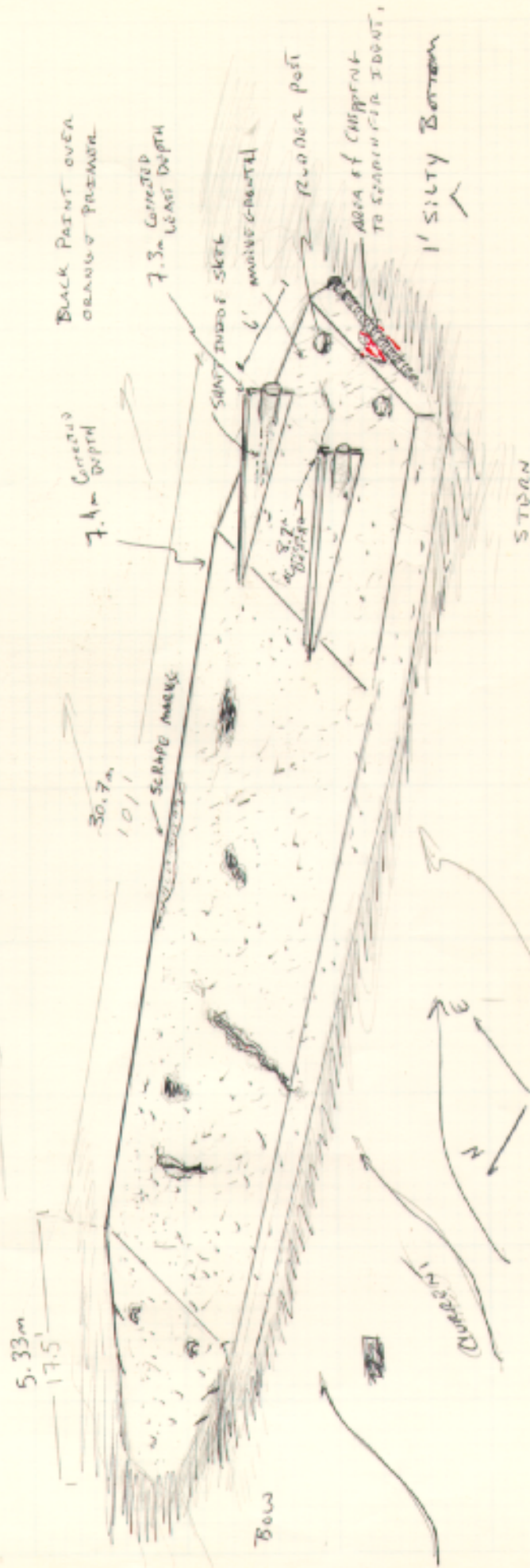
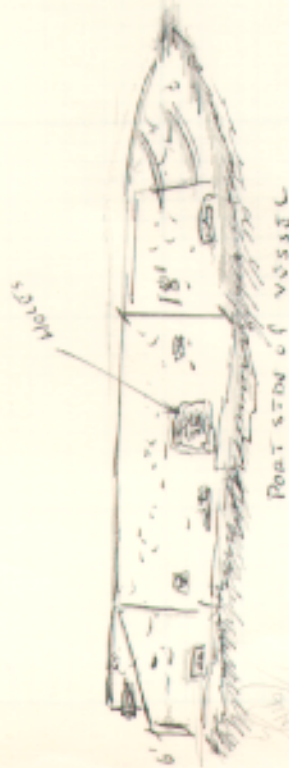
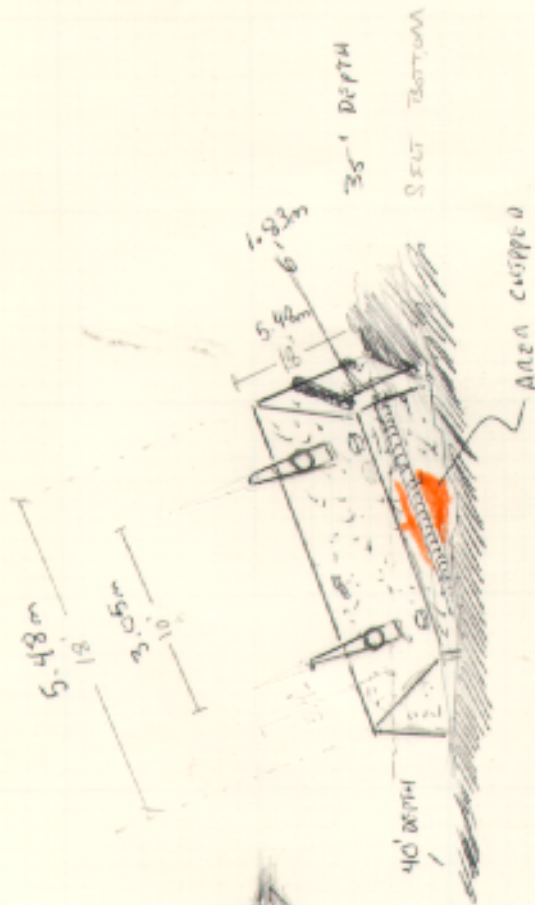
DIVE DESCRIPTION:

DIVE

DIVERS: _____ Surface Interval/RNT: _____
TIME IN: _____ DEPTH: _____
TIME OUT: _____ Bottom Time: _____
Diver Type (Letter Class): _____

DIVE DESCRIPTION:





March 16, 1964
Hull & Stern

NOAA Ship MT MITCHELL

Diver Least-Depth Investigations

Section One: Survey Information

DATE/DN: 28 Jul / 209 PROJECT/SHEET: SK914E93 / MS-10-03-93
 GAGE OPERATOR: SORSCH / AHERN DIVERS: Malsred / Ruelle
 GAGE S/N: ☐ 0-21m S/N 245419 VESNO: 2221
☒ 0-42m S/N 245418 AWOIS ITEM #: DE E1
☐ 0-70m S/N 8302079N

Section Two: Pneumofathometer Calibration

☒ Complete pneumofathometer leak check and leadline comparison as described on Pneumofathometer Calibration log. Attach completed log to this form.

Section Three: Least Depth Determination

☒ Lower pneumofathometer orifice to diver and await signal for measurement. Make three measurements, visually averaging any wave effect.

MEASUREMENT 1: 209 Pneumogage ☐ Leadline ☐ Depth Gage

FIX NUMBERS: _____ AVERAGE DEPTH READING: 7.5
 READING ONE: 7.5 TIME OF READINGS (GMT): 2141 Hrs CAT
 READING TWO: 7.5 PREDICTED TIDE CORRECTOR: -0.1m
 READING THREE: 7.5 CORRECTED LEAST DEPTH: 7.4

MEASUREMENT 2: 5708 Pneumogage ☐ Leadline ☐ Depth Gage

FIX NUMBERS: 5708 E12253.1 N 22145.4 AVERAGE DEPTH READING: 7.4
 READING ONE: 7.4 TIME OF READINGS (GMT): 2143 Hrs CAT
 READING TWO: 7.4 PREDICTED TIDE CORRECTOR: -0.1m
 READING THREE: 7.4 CORRECTED LEAST DEPTH: 7.3m

MEASUREMENT 3: 5708 Pneumogage ☐ Leadline ☐ Depth Gage

FIX NUMBERS: _____ AVERAGE DEPTH READING: 8.367
 READING ONE: 8.3 TIME OF READINGS (GMT): 2150 Hrs CAT
 READING TWO: 8.4 PREDICTED TIDE CORRECTOR: -0.1m
 READING THREE: 8.4 CORRECTED LEAST DEPTH: 8.267m

Section Four: Diver Report

☒ Predicted Interval Tides for: SHIP SHOAL based on data for Reference Station: Grand Isle LA

Month: Jul All times are Greenwich Mean Time (GMT); Tide Units: Meters

DEPTH/TIME	DN	Time	Tide	Time	Tide	Time	Tide	Time	Tide	Time	Tide	CH
VISIBILITY												
CURRENT:												
	209	18:00	.1	18:15	.1	18:30	.1	18:45	.1	19:00	0.0	
		19:15	0.0	19:30	0.0	19:45	0.0	20:00	-0.0	20:15	-0.0	
		20:30	-0.0	20:45	-0.0	21:00	-0.1	21:15	-0.1	21:30	-0.1	
		21:45	-0.1	22:00	-0.1	22:15	-0.1	22:30	-0.1	22:45	-0.1	
		23:00	-0.1	23:15	-0.1	23:30	-0.1	23:45	-0.1			

DOL 6145.4
2854.0
8796.3
29746.3

Longitude 028:51:59.105
050:49:50.356
000:00:00.000

Latitude 22145.4
12253.1
0.0

5708
DN 210

NOAA SHIP MT. MITCHELL DIVER INVESTIGATION REPORT

Dive Operations Information:

DATE/DN: 28 JULY / 209

Project/Sheet: SH 904693 / ME-10-03-93

Dive Supervisor: L T T G Hulsbeck

Dive Item #: E2

Vessel #: 2221

AWOIS #: 8436

DIVE # 1

DIVERS: SORACCO / PAVELLE Surface Interval/RNT: 48

TIME IN: 1756 DEPTH: 25 feet

TIME OUT: 1803 Bottom Time: 7 minutes

Diver Type (Letter Class): _____

DIVE DESCRIPTION:

DIVERS DESCENDED DOWN EXPOSED OBJECT. AT 25' BOTTOM A MEASURING TAPE WAS SPIKED AND DIVERS ASCENDED, MEASURING OBJECT. TOTAL LENGTH 7' FT. AT $\approx 30^\circ \angle$

DIVE # _____

DIVERS: _____ Surface Interval/RNT: _____

TIME IN: _____ DEPTH: _____

TIME OUT: _____ Bottom Time: _____

Diver Type (Letter Class): _____

DIVE DESCRIPTION:

DIVE # _____

DIVERS: _____ Surface Interval/RNT: _____

TIME IN: _____ DEPTH: _____

TIME OUT: _____ Bottom Time: _____

Diver Type (Letter Class): _____

DIVE DESCRIPTION:

DIVE # _____

DIVERS: _____ Surface Interval/RNT: _____

TIME IN: _____ DEPTH: _____

TIME OUT: _____ Bottom Time: _____

Diver Type (Letter Class): _____

DIVE DESCRIPTION:

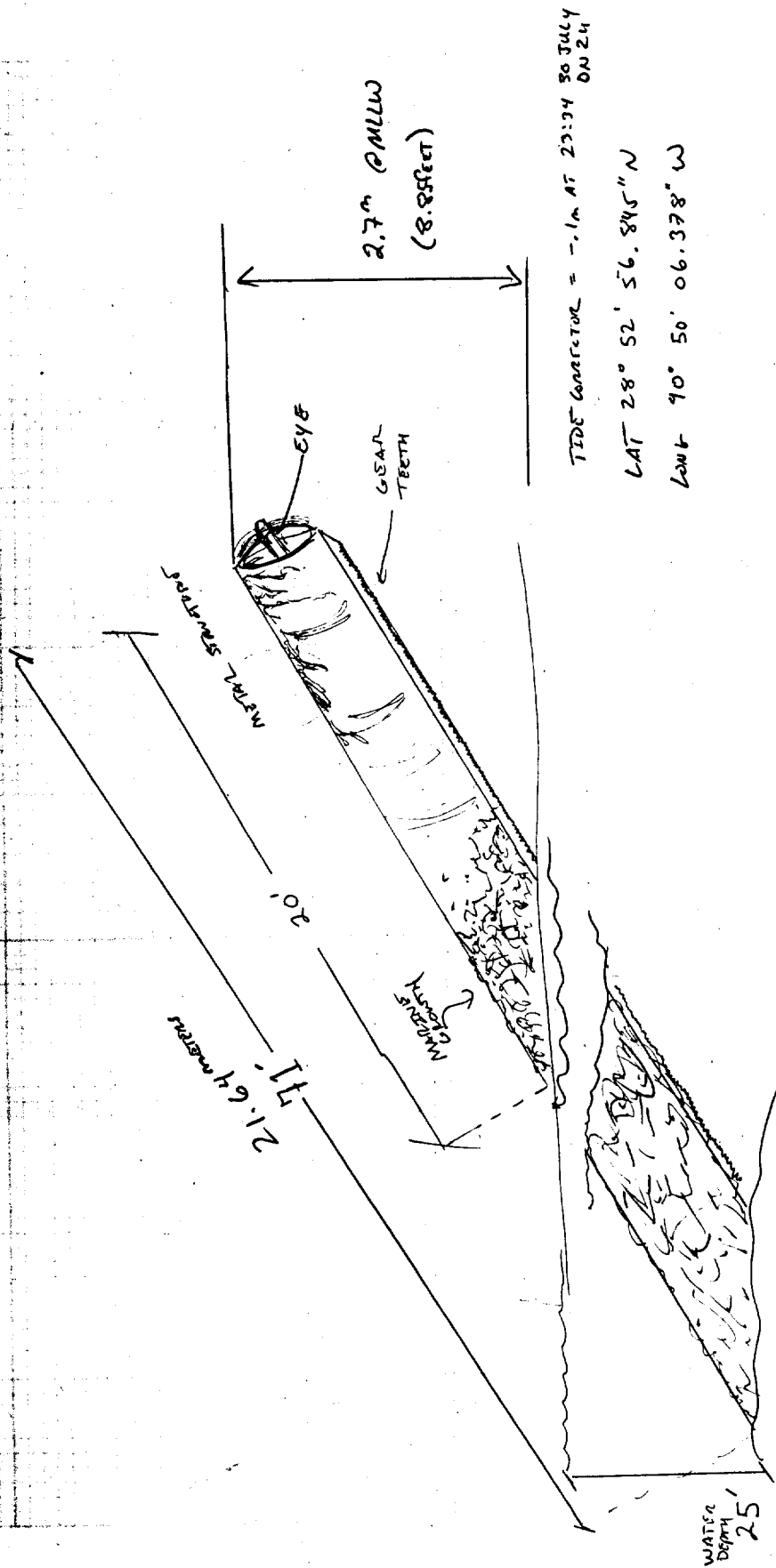
-----USE BACK FOR MORE DESCRIPTION/DRAWING SPACE-----

11820.9

23923.5

AK-053 8436

E2



Michael R. Simon
MICHAEL R. SIMON CWS/PERS

AWOIS 8436

LAT 28° 52' 56.845" N
LONG 90° 50' 06.378" W



AWOIS 8436 Jackup rig leg
30 July 93 extends to a
20:23:00 GMT height of 2.6 m
15:23:00 CDT out of the water

30 JULY 1993

DN 211

HT ABOVE WATER LINE (MLLW)

2.7 m

DEPTH of WATER (MLLW)

7.7 m

E 11820.9

N 23923.5



AWOIS 8436 (Backup
30 July 93 rig
leg)

**NOAA SHIP MT. MITCHELL
DIVER INVESTIGATION REPORT**

Dive Operations Information:

DATE/DN: 24 1 29 AUG 93 Project/Sheet: ME-10-03-93
Dive Supervisor: Rivera/Soracco Dive Item #: E3
Vessel #: 2225 AWOIS #: _____

DIVE # 1

DIVERS: PAVETTE Swallow Rivera Surface Interval/RNT: 7
TIME IN: 1124 DEPTH: 25 feet
TIME OUT: 1142 Bottom Time: 19 minutes
Diver Type (Letter Class): A

DIVE DESCRIPTION:

DIVERS DESCENDED DOWN BUOY LINE SWAMP N Sm ;
DISCOVERED OBJECT. 2 PILES of CONCRETE RUNNING E/W
EAST SIDE IS TALLEST (3.4 ft HIGH, 9' WIDE, 40' E/W)

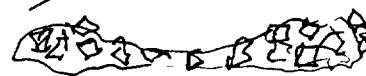
DIVE # 2

DIVERS: SORACCO, WILLIAMS Surface Interval/RNT: _____
TIME IN: 1250 / 1302 / 1310 DEPTH: 25
TIME OUT: 1258 / 1308 / 1317 Bottom Time: 27
Diver Type (Letter Class): _____

DIVE DESCRIPTION: INVERTED LEAD LINE MEASUREMENT OF LEAST DEPTH

WILLIAMS 2750 psi 1850 OUT - LEAST DEPTH 6.5
SORACCO 2850 psi 1750 OUT Bottom Depth 7.4 > UNCORRECTED.

SKETCH ON REVERSE



DIVE #

DIVERS: Soracco, Williams, Swallow, Rivera Surface Interval/RNT: _____
TIME IN: 1412:30 DEPTH: 45
TIME OUT: 1428:05 Bottom Time: 24
Diver Type (Letter Class): _____

DIVE DESCRIPTION:

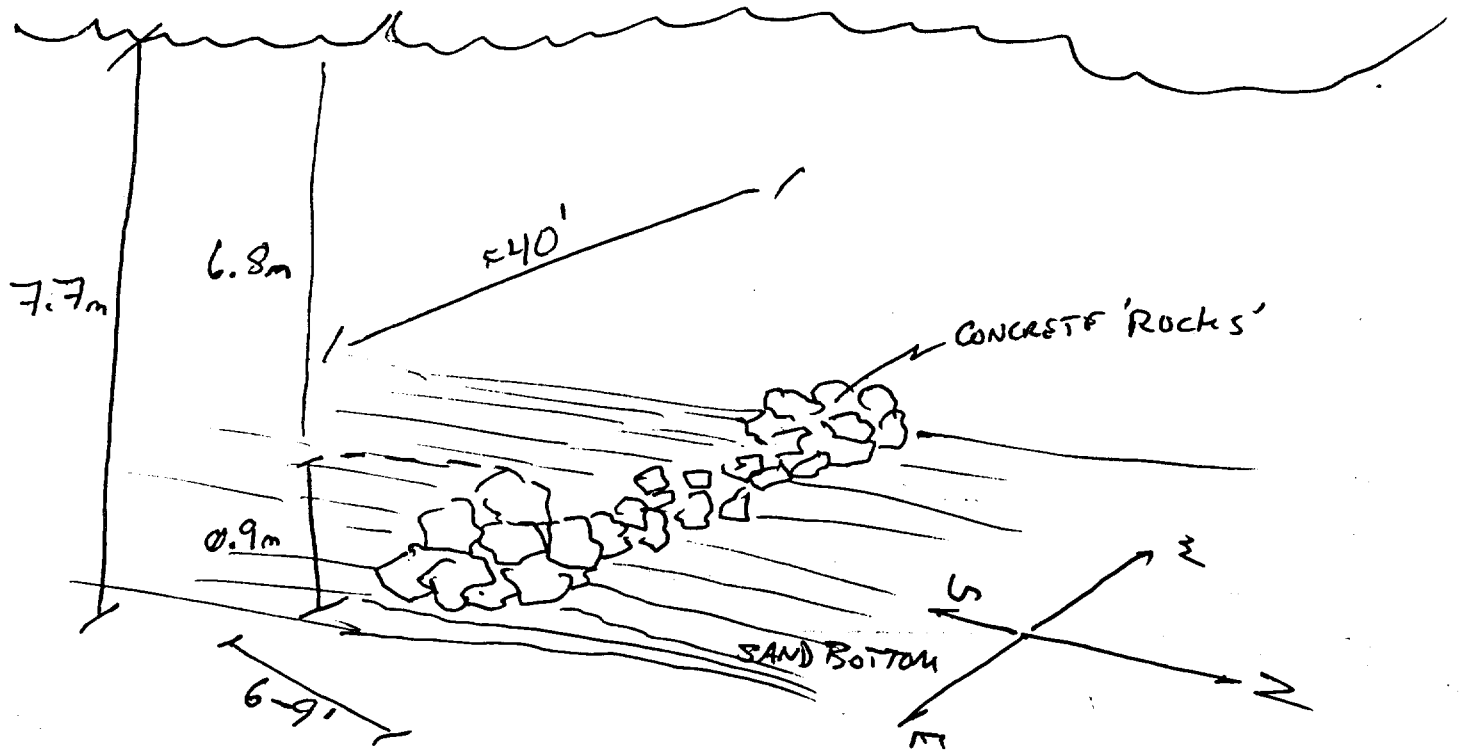
DIVE #

DIVERS: _____ Surface Interval/RNT: _____
TIME IN: _____ DEPTH: _____
TIME OUT: _____ Bottom Time: _____
Diver Type (Letter Class): _____

DIVE DESCRIPTION:

SKETCH

E2



Michael P. Soracco
MICHAEL P. SORACCO CIVIL/NOAA

NOAA Ship MT MITCHELL

Diver Least-Depth Investigations

Section One: Survey Information

DATE/DN: 241 / 29 Aug 93 PROJECT/SHEET: MS-10-03-93
 GAGE OPERATOR: N/A DIVERS: Somaco, Williams
 GAGE S/N: N/A ☐ 0-21m S/N 245419 VESNO: 2225, 2224
☐ 0-42m S/N 245418 AWOIS ITEM #: E3
☐ 0-70m S/N 8302079N

Section Two: Pneumofathometer Calibration

☒ Complete pneumofathometer leak check and leadline comparison as described on
 Pneumofathometer Calibration log. Attach completed log to this form. N/A

Section Three: Least Depth Determination

☒ Lower pneumofathometer orifice to diver and await signal for measurement. Make three
 measurements, visually averaging any wave effect.

MEASUREMENT 1: ☐ Pneumogage ☒ ~~Leadline~~ ☐ Depth Gage
 FIX NUMBERS: 2917 AVERAGE DEPTH READING: 6.5 m
 READING ONE: 6.5 m TIME OF READINGS (GMT): 1817 GMT
 READING TWO: 6.5 m PREDICTED TIDE CORRECTOR: +0.3 m
 READING THREE: 6.5 m CORRECTED LEAST DEPTH: 6.8 m

MEASUREMENT 2: ☐ Pneumogage ☒ ~~Leadline~~ ☐ Depth Gage
 HORPS Pre-Survey Program Version: 7.04 PRE-SURVEY: OFFSET TABLE
 15: 7.4 m to Bottom
+0.3 Tide Cor.
7.7 m corrected
bottom depth

Table No 18: Offset, Layback, Depth
 No. Freq Transducer: 0.00 m., 0.00 m., 0.00 m.
 Hippy Analog Bias Corr.: 0.00 m.
 Falcon RT 1: 0.00 m., 0.00 m., 0.00 m.
 GPS receiver 1: -1.43 m., -0.83 m., -2.73 m.
 Argos: 0.00 m., 0.00 m., 0.00 m.
 GPS receiver 2: 0.00 m., 0.00 m., 0.00 m.
 R frame: -2.84 m., 2.74 m., -2.78 m.
 Calibration Point 1: 0.00 m., 0.00 m., 0.00 m.
 Calibration Point 2: 0.00 m., 0.00 m., 0.00 m.
 Calibration Point 3: 0.00 m., 0.00 m., 0.00 m.
 POSITION FACTORS: Acc. Limit: .45 m/s², Gps on/off: 1.00 m/s.
 Angle Limit: .30 deg/s, Iterations: 1.
 Crabbing Limit: .30 deg.
 SETTLEMENT & SOUND TABLE:
 Up to this speed, apply this: 0.00 m/s, 4.00 m/s, 6.40 m/s, 15.00 m/s, 0.00 m/s, 0.00 m/s
 depth corrector (Planing is neg.): 0.00 m/s, 0.00 m/s, .10 m/s, 0.00 m/s, -.10 m/s, 0.00 m/s, 0.00 m/s

TRANSDUCER DEPTH IS ALWAYS A POSITIVE VALUE
 LEAST DEPTH
 FATHO READING: 5.9 m
 Vel: +0.1 m
 Off: +0.57 m
 Tide: +0.3 m
6.87 m

SOUND VELOCITY TABLE

Day Number: 241
 Depth Units: METERS
 Table No: 16
 Depth Corr.: 2.5 0.0
 19.0 .4
 17.9 .4
 21.8 .5
 22.8 .4
 0.0 0.0

☒ Predicted Interval Tides for SACP SHOM based on data for Reference Stations Grand Isle LA

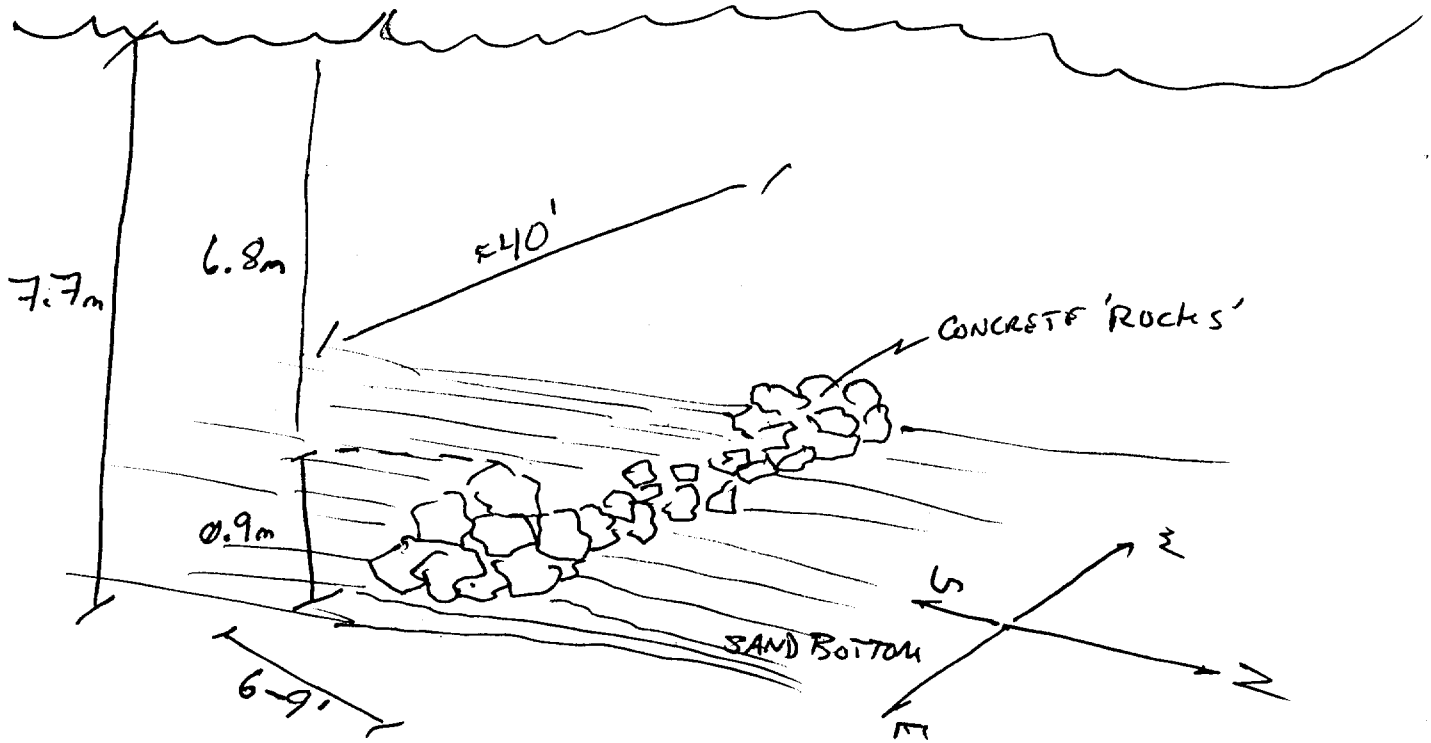
DEPT	Month: Aug	All times are Greenwich Mean Time (GMT)						Tide Units: Meters					
		Time	Tide	Time	Tide	Time	Tide	Time	Tide	Time	Tide	Time	Tide
VISI	241	18:00	.4	18:01	.4	18:02	.4	18:03	.4	18:04	.4	18:05	.4
		18:06	.4	18:07	.4	18:08	.4	18:09	.4	18:10	.4	18:11	.4
		18:12	.4	18:13	.4	18:14	.4	18:15	.4	18:16	.4	18:17	.4
		18:18	.4	18:19	.4	18:20	.4	18:21	.4	18:22	.4	18:23	.4
		18:24	.4	18:25	.4	18:26	.4	18:27	.4	18:28	.4	18:29	.4
		18:30	.4	18:31	.4	18:32	.4	18:33	.4	18:34	.4	18:35	.4
CURR	241	18:00	.4	18:01	.4	18:02	.4	18:03	.4	18:04	.4	18:05	.4
		18:06	.4	18:07	.4	18:08	.4	18:09	.4	18:10	.4	18:11	.4
		18:12	.4	18:13	.4	18:14	.4	18:15	.4	18:16	.4	18:17	.4
		18:18	.4	18:19	.4	18:20	.4	18:21	.4	18:22	.4	18:23	.4
		18:24	.4	18:25	.4	18:26	.4	18:27	.4	18:28	.4	18:29	.4
		18:30	.4	18:31	.4	18:32	.4	18:33	.4	18:34	.4	18:35	.4

SEARCH SURROUNDING DEPTH
 FATHO: 6.8 m
 Vel: +0.2 m
 Off: +0.57 m
 Tide: +0.3 m
7.87 m

E3

~~Sketch~~

Sketch



Michael P. Soracco

MICHAEL P. SORACCO JUS/NOAA

NOAA FORM 61-29 (12-71)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	
LETTER TRANSMITTING DATA		REFERENCE NO. N/CG244-36-94	
TO: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> NOAA/National Ocean Service Chief, Data Control Branch N/CG243, Station 6813, SSMC3 1315 East-West Highway Silver Spring, MD 20910 </div>		DATA AS LISTED BELOW WERE FORWARDED TO YOU BY (Check): <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> ORDINARY MAIL </div> <div> <input type="checkbox"/> AIR MAIL </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div> <input type="checkbox"/> REGISTERED MAIL </div> <div> <input checked="" type="checkbox"/> EXPRESS </div> </div> <div style="margin-top: 5px;"> <input type="checkbox"/> GBL (Give number) _____ </div>	
		DATE FORWARDED 15 Aug 1994	
		NUMBER OF PACKAGES 4 Boxes, 1 Tube	
NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.			
<div style="text-align: center;"> FE-390SS <u>Louisiana, Gulf of Mexico, 10 NM South of Isles Dernieres</u> </div> <div style="margin-top: 10px;"> 1 Tube (1 of 5) Containing: 1 Original Smooth sheet for FE-390SS 1 Original Descriptive Report for FE-390SS </div> <div style="margin-top: 10px;"> 1 Box (2 of 5) Containing: 1 Envelope containing original Separates removed from the original Descriptive Report 1 Envelope containing original Appendices removed from the original D.R. 1 Accordion file with field printouts, fathograms and sonargrams for: VESNO 2224 for JDs: 200, 201, 202, 209, 210, and 211 </div> <div style="margin-top: 10px;"> 1 Box (3 of 5) Containing: 1 Cahier containing final Sounding by Depth Listing, Control File, and Listing of Cartographic Features 2 Accordion files with field printouts, fathograms and sonargrams for: VESNO 2223 for JDs: 212, 213, 224, 225, 226, 227, 228, 229, 241, and 242 </div> <div style="margin-top: 10px;"> 1 Box (4 of 5) Containing: 2 Accordion files with field printouts, fathograms and sonargrams for: VESNO 2224 for JDs: 201, 202, 209 (Reg), 210, 211, 212, and 213 1 CDTape for FE-390SS (no L-file) </div>			
FROM: (Signature) <i>R.H. Whitfield</i> Richard H. Whitfield		RECEIVED THE ABOVE (Name, Division, Date)	
Return receipted copy to: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Atlantic Hydrographic Section, N/CG244 439 W. York Street Norfolk, VA 23510-1114 </div>			

REFERENCE NO.

N/CG244-32-94

LETTER TRANSMITTING DATA

TO:

NOAA/National Ocean Service
Chief, Data Control Branch
N/CG243, Station 6813, SSMC3
1315 East-West Highway
Silver Spring, MD 20910

DATA AS LISTED BELOW WERE FORWARDED TO YOU
BY (Check):☐ ORDINARY MAIL ☐ AIR MAIL☐ REGISTERED MAIL ☒ EXPRESS☐ GBL (Give number) _____

DATE FORWARDED

22 July 1994

NUMBER OF PACKAGES

4 Boxes, 1 Tube

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-390SS

Louisiana, Gulf of Mexico, 10 NM South of Isles Dernieres1 Box (5 of 5) Containing:

2 Accordion files with field printouts, fathograms and sonargrams for:
VESNO 2224 for JDs: 213, 224, 225, 226, 227, 228, 229, and 241

FROM: (Signature)

Richard H. Whitfield

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Section, N/CG244
439 W. York Street
Norfolk, VA 23510-1114

08/15/94

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-390SS

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		3341
NUMBER OF SOUNDINGS		24297
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	126	02/04/94
VERIFICATION OF FIELD DATA	265	07/29/94
ELECTRONIC DATA PROCESSING	93	
QUALITY CONTROL CHECKS	56	
EVALUATION AND ANALYSIS	54	08/02/94
FINAL INSPECTION	16	08/10/94
TOTAL TIME	610	
ATLANTIC HYDROGRAPHIC SECTION APPROVAL		08/11/94

**COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT FOR FE-390SS (1993)**

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

H. CONTROL

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheets have been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 0.856 seconds (26.36 meters or 2.63 mm at the scale of the survey) north in latitude, and 0.330 seconds (8.95 meters or 0.89 mm at the scale of the survey) west in longitude.

M. COMPARISON WITH PRIOR SURVEYS

Hydrographic

H-6154 (1936) 1:40,000

H-6173 (1936) 1:40,000

Prior survey H-6154 (1936) is common to the present survey from Latitude 28°52'40"N, to the southern limit of the present survey. Present survey soundings generally range from 1 to 3 meters (3 to 10 ft) deeper than prior survey soundings.

Prior survey H-6173 (1936) is common to the present survey from Latitude 28°52'40"N, to the northern limit of the present survey. Present survey soundings generally range from 0^s to 2 meters (1 to 6 ft) deeper than prior survey soundings. In the northern part of the present survey, north of Latitude 28°54'30"N, present soundings range from 0 to 2 meters (0 to 6 ft) shoaler than the prior survey.

The present survey is adequate to supersede the prior surveys in the common area.

**O. COMPARISON WITH CHARTS 11340 (55th Ed., Sep. 12/92)
11356 (30th Ed., July 25/92)
11357 (28th Ed., Apr. 25/92)**

The charted hydrography originates with the previously discussed prior surveys and needs no further discussion. The following should be noted:

1) The hydrographer located sixty platforms within the limits of the present survey. These platforms fall within close proximity of charted platforms. Seventeen additional charted platforms do not fall near any of the platforms located by the present survey and apparently no longer exist at the charted location. It should also be noted that the charted company name "ODECO" is not the same as noted by the hydrographer. The company name noted for these platforms is "MEPCO". It is recommended that the platforms within the common area be charted as shown on the present survey unless other information indicates otherwise.

2) The hydrographer located two uncharted obstructions (rig legs) baring 5⁶ meters (18 ft) in Latitude 28°53'32.28"N, Longitude 90°49'49.52"W and Latitude 28°53'32.50"N, Longitude 90°49'49.29"W. These two features are in close proximity to platform "MEPCO SS 93 43" in Latitude 28°53'33.83"N, Longitude 90°49'50.02"W. It is recommended that these two obstructions be charted as shown on the present survey unless other information indicates otherwise. Photographs of the rig legs are appended to the Descriptive Report.

The present survey is adequate to supersede the chart in the common area.

P. ADEQUACY OF SURVEY

This is an adequate side scan sonar survey. No additional work is recommended.

MT MITCHELL Processing Team

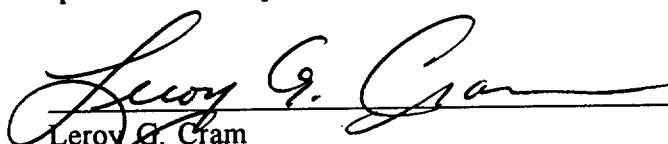
For: Reginald L. Keene Sr.
Reginald L. Keene Sr.
Cartographic Technician
Verification of Field Data

Richard H. Whitfield
Richard H. Whitfield
Cartographer
Evaluation and Analysis

APPROVAL SHEET
FE-390SS

Initial Approvals:

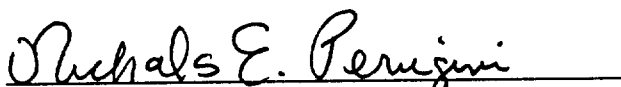
The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts of the survey have been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.



Leroy G. Cram
Supervisory Cartographer
Atlantic Hydrographic Section

Date: Aug. 11, 1994

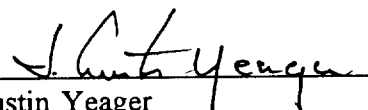
I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.



Nicholas E. Perugini, CDR, NOAA
Chief, Atlantic Hydrographic Section

Date: Aug 11, 1994

Final Approval:

Approved: 

J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

Date: 10/27/94



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship MT. MITCHELL S-222
439 W. York Street
Norfolk, VA 23510-1114

25 September 1993

MEMORANDUM FOR: Rear Admiral Freddie L. Jeffries, NOAA
Director, Atlantic Marine Center

FROM: *David MacFarland*
Captain David B. MacFarland
Commanding Officer, NOAA Ship MT MITCHELL

SUBJECT: Danger to Navigation Reports

On 30 July 1993, MT MITCHELL submitted a danger to navigation report (Date/Time Group 302110Z JUL 93) referencing a submerged obstruction found during the item investigation survey off the Louisiana coast. This report was submitted per HSG 66 requirements.

A copy of this danger to navigation report and a chartlet of the affected area has been appended to this memorandum. This memorandum, the danger to navigation report, and the chartlet are being forwarded to N/CG221.

Attachments

cc: Mr. Dennis Romesburg N/CG221



DBM

R 302000Z JUL 93
FM NOAAS MT MITCHELL
TO NOAAMOA NORFOLK VA
CCGDEIGHT NEW ORLEANS LA //OAN
DMAHTC (NAVWARN) WASHINGTON DC//MCNM//

E1 HAZ NAV MSG

BT
UNCLAS

SUBJ REPORT OF DANGER TO NAVIGATION

HYDROGRAPHIC SURVEY REGISTRY NUMBER: FS-390SS
SURVEY TITLE: LOUISIANA COAST ITEM INVESTIGATION
STATE: LOUISIANA
GENERAL LOCALITY: GULF OF MEXICO
SUBLOCALITY: 16 NM SW OF ISLE DERNIERES
PROJECT NUMBER: OPR-SK904-MI-93, NOAA SHIP MT MITCHELL

THE FOLLOWING ITEM WHICH IS A POTENTIAL DANGER TO NAVIGATION WAS
DISCOVERED DURING HYDROGRAPHIC SIDE SCAN SONAR SURVEY
OPERATIONS BY THE NOAA SHIP MT MITCHELL:

OBJECT DISCOVERED: A SUBMERGED METAL VESSEL WAS DISCOVERED AT
POSITION 28-51-59.105N6, 090-49-50.356W1. THE TWIN-SCREW VESSEL IS
OVERTURNED AND ORIENTED IN A NORTH-SOUTH DIRECTION WITH BOW AND
STARBOARD SIDE BURIED IN THE SILT BOTTOM. THE VESSEL'S ESTIMATED
LENGTH IS 125 FEET AND HAS A FLAT BOTTOM BEAM OF 18 FEET. THE
LEAST DEPTH OF 23.95 FEET, CORRECTED TO MLLW USING PREDICTED TIDES,
OCCURS AT THE STERN WITH THE REST OF THE VESSEL LAYING TO THE
NORTH OF THIS POSITION. THE POSITION OF THE VESSEL WAS
DETERMINED USING DIFFERENTIAL GPS. THE CHARTED WATER DEPTH IN THIS
AREA IS 29 FEET.

THIS ITEM AFFECTS NAUTICAL CHARTS:

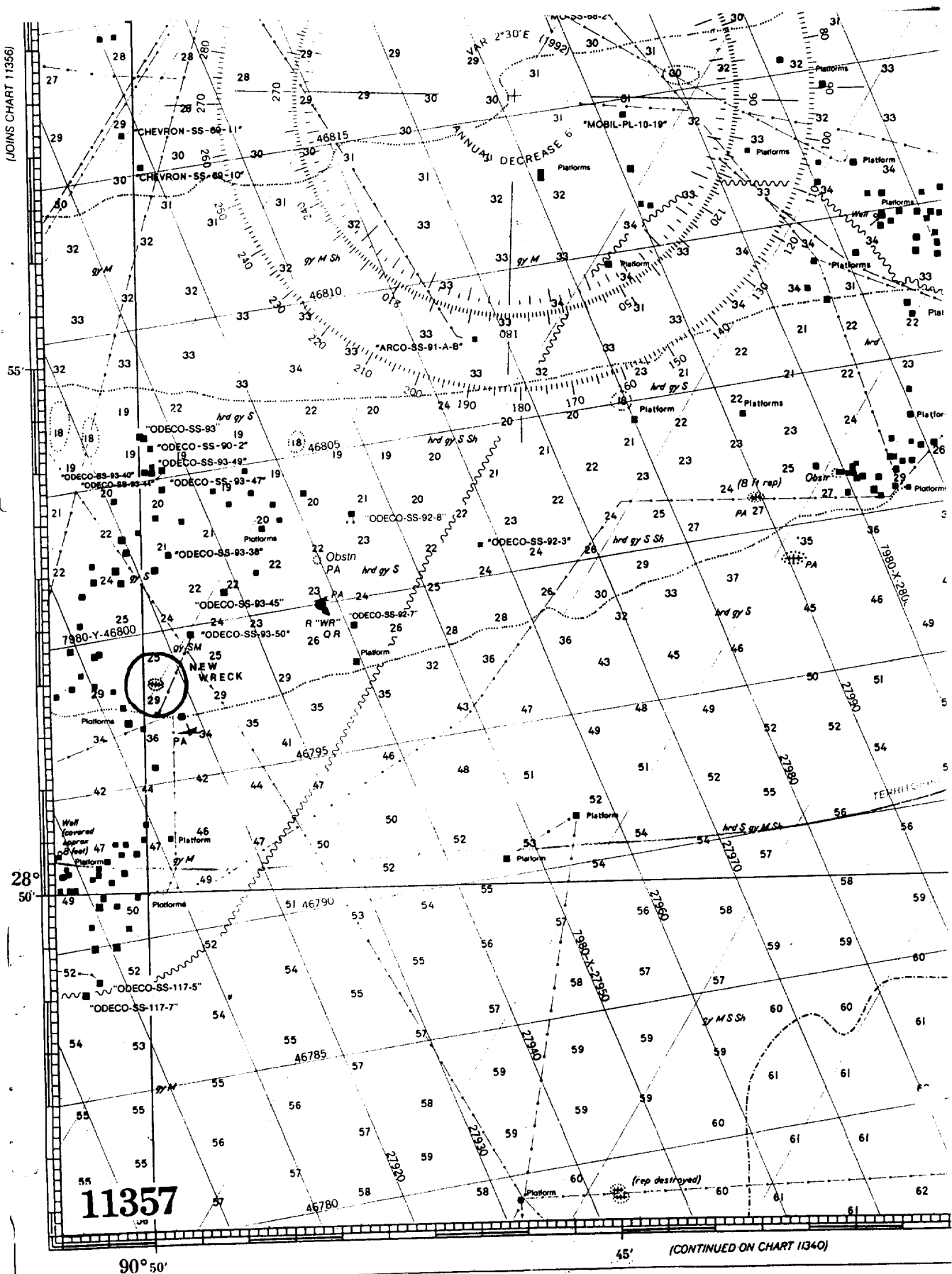
CHART NUMBER	11357
EDITION NUMBER	28TH
DATE	25 APR 92
REPORTED DEPTH	24 FEET
CHARTED HORIZ. DATUM	NAD 83
GEOGRAPHIC POSITION	
LATITUDE	28-51-59.105N
LONGITUDE	090-49-50.356W

QUESTIONS CONCERNING THIS REPORT SHOULD BE DIRECTED TO THE
ATLANTIC MARINE CENTER AT (804) 441-6206.

BT
NNNN

700 302100Z JUL 93 U.S. COAST GUARD Via C LINK

(JOINS CHART 11356)



11357

90° 50'

45'

(CONTINUED ON CHART 11340)



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship MT. MITCHELL S-222
439 W. York Street
Norfolk, VA 23510-1114

01 October 1993

MEMORANDUM FOR: Rear Admiral Freddie L. Jeffries, NOAA
Director, Atlantic Marine Center
FROM: Captain David B. MacFarland, NOAA
Commanding Officer, NOAA Ship MT MITCHELL
SUBJECT: Danger to Navigation Report

On 01 October 1993, MT MITCHELL submitted a report of danger to navigation (DTG 011500Z7 OCT 93).

The message was addressed to NOAAMOA NORFOLK VA, CCGDEIGHT NEW ORLEANS LA //OAN and DMAHTC (NAVWARN) WASHINGTON DC//MCNM//. A copy of this message and accompanying chartlet has been attached.

In accordance with HSG 66, a copy of this memorandum, radio message, and chartlet will be forwarded to N/CG221. Copies and a sketch of the item have also been forwarded to CCGDEIGHT NEW ORLEANS LA //OAN at their request.

Attachments

cc: Mr. Dennis Romesburg N/CG221



R 011500Z7 OCT 93
FM NOAA MT MITCHELL
TO NOAA MOA NORFOLK VA
CCGDEIGHT NEW ORLEANS LA //OAN
DMAHTC (NAVWARN) WASHINGTON DC//MCNM//

BT
UNCLAS

SUBJ: REPORT OF DANGER TO NAVIGATION

HYDROGRAPHIC SURVEY REGISTRY NUMBER: FS-390SS
SURVEY TITLE: LOUISIANA COAST ITEM INVESTIGATION
STATE: LOUISIANA
GENERAL LOCALITY: GULF OF MEXICO
SUBLOCALITY: 16 NM SW OF ISLE DERNIERES
PROJECT NUMBER: OPR-SK904-MI-93, NOAA SHIP MT MITCHELL

THE FOLLOWING ITEM WHICH IS A POTENTIAL DANGER TO NAVIGATION WAS
DISCOVERED DURING HYDROGRAPHIC SIDE SCAN SONAR SURVEY
OPERATIONS BY THE NOAA SHIP MT MITCHELL:

OBJECT DISCOVERED: A SUBMERGED PILE OF BROKEN CONCRETE WAS
DISCOVERED AT POSITION 28-54-11.118N1, 090-49-02.701W2. THE PILE
IS 40 FEET LONG, 8 FEET WIDE AND IS ORIENTED IN AN EAST-WEST
DIRECTION WITH A MOUND RISING 3.28 FEET (1 METER) OFF THE BOTTOM
AT THE EAST END. THE POSITION OF THE DANGER WAS DETERMINED USING
DIFFERENTIAL GPS.

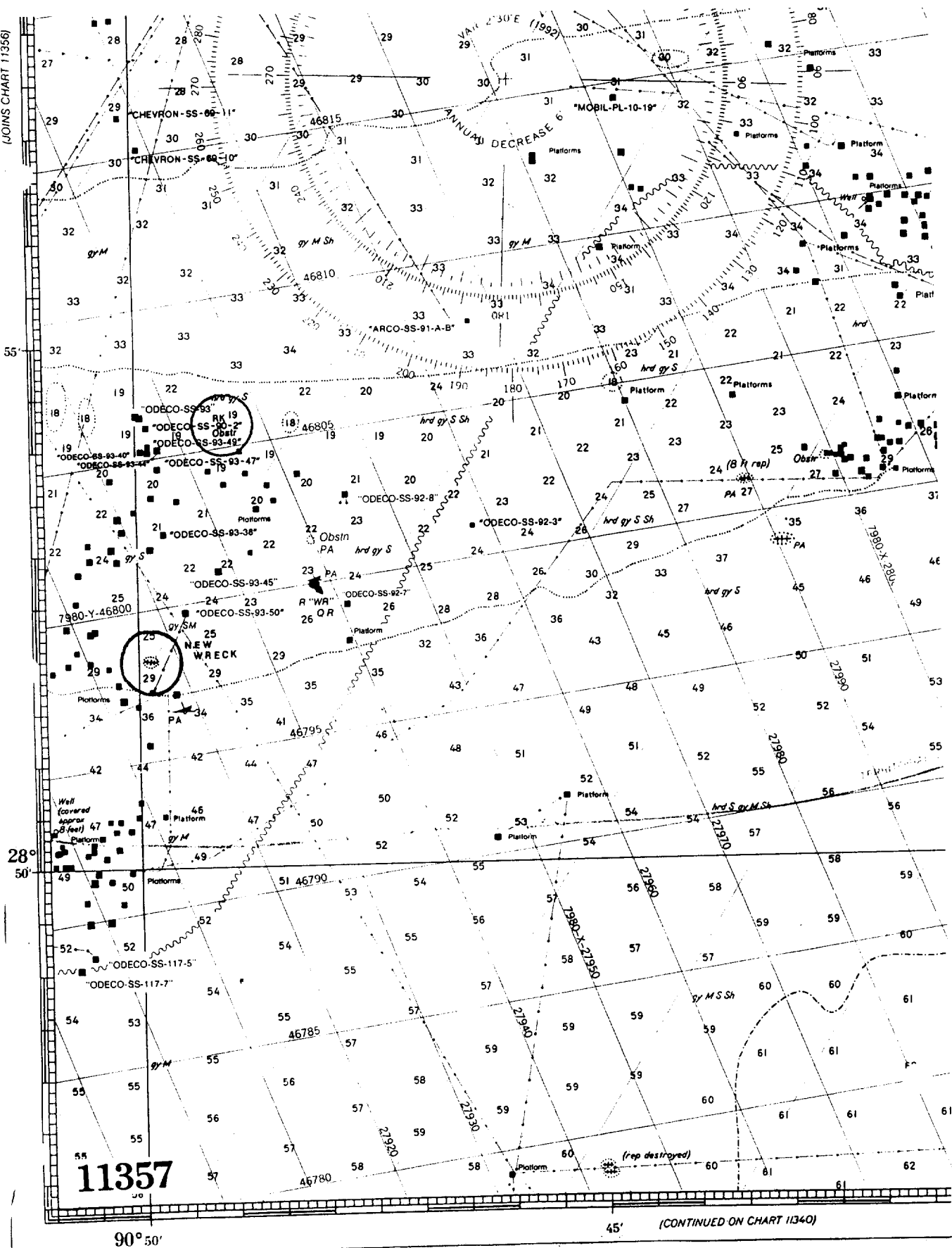
THIS ITEM AFFECTS NAUTICAL CHARTS:

CHART NUMBER	11357
EDITION NUMBER	28TH
DATE	25 APR 92
CHARTED HORIZ. DATUM	NAD 83
GEOGRAPHIC POSITION	
LATITUDE	28-54-11.118N
LONGITUDE	090-49-02.701W

QUESTIONS CONCERNING THIS REPORT SHOULD BE DIRECTED TO THE
ATLANTIC MARINE CENTER AT (804) 441-6206.

BT
NNNN

JOINS CHART 11356)



11357

(CONTINUED ON CHART 11340)

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-390

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED